



Given Truly.
John M. Saunders.

A

FAMILIAR TREATISE

ON

MEDICINE:

BY

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VOLUME I.

ANATOMY, PHYSIOLOGY, HYGIENE, DOMESTIC REMEDIES,
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PREFACE.

THE present volume is offered to the public with the belief that there is an earnest desire by many to understand more of the structure and functions of their own bodies, and to qualify themselves to meet cases of emergency, when a competent physician can not be obtained. Men and women know less of themselves than they know of anything else, and it is not only surprising, but often humiliating, to witness the gross ignorance displayed on these subjects, by persons who are otherwise well informed. It would seem, sometimes, as if men's reasoning powers were in complete abeyance when they or their families are sick, being as ready to employ the merest charlatan or nostrum vender, as the educated physician, and to disregard the plainest rules of hygiene, as to give the patient good nursing.

There must be some reason for this state of feeling, as it is certainly very unnatural. There is nothing that a man loves as he loves life, and life has no blessing like health; why, therefore, are people so indifferent to that knowledge that will enable them to prolong the one, and preserve the other? Men and women should care to understand the structure and functions of their own bodies, and how to avoid the causes of disease. So, also

should they use a sound discretion in selecting a medical adviser, and avoid ignorant pretenders, and patent nostrums, using their reason from absolute knowledge, and not governed by emotional impulse, or by novelty or superstition. The reasons why they do not, present themselves to me as follows: First, physicians in all ages have tried to confine a knowledge of medical subjects to their own profession, and have successfully accomplished their purpose by making it a breach of *medical ethics* to write on medicine for the people. Second, the public have been instructed to believe that these subjects are beyond the ordinary powers of comprehension; that there is something impure, if not sinful, in their study, and that it would be a great breach of propriety, if nothing worse, to endeavor to learn that which has so strenuously been kept from them.

The human body is perfect in all its parts, and adapted by its Creator to supply all the earthly wants of the soul, which is placed within it. Nothing displays the wisdom and beneficence of God in a higher degree; and we might say, with the eminent anatomist, Cruveilhier, "While contemplating the marvelous organization, in which all has been arranged with such intelligence and wisdom, that no fiber can acquire the slightest addition, or undergo the least diminution, without the equilibrium being destroyed, and disorder induced — what anatomist is there who would not feel tempted to exclaim with Galen, that a work on anatomy is the most beautiful hymn which man can chant in honor of his Creator?"

In undertaking to present that knowledge, which I consider it the duty of every one to possess, I do not wish to be understood as holding the opinion "*that every man can be his own doctor.*" Every person should know how to avoid disease, how to act in cases of accident and injury, how to treat simple cases of disease, and how to nurse and properly care for the sick. It is this knowledge that I have attempted to give in the following pages, using plain language that may be understood by all.

I am satisfied that no person who will carefully read its pages, will be led into injudicious experimenting upon their own bodies, or their neighbors, but that they will be enabled, in most cases, to decide when simple remedies are sufficient, and when it is necessary to have skilled advice.

On the subject of nursing, I have preferred to give the small work of Miss Florence Nightingale complete, rather than write on the subject myself. Her devotion to the sick and wounded in the Crimean war, placed her foremost in the list of benevolent women, and gave her a world-wide reputation. In this small volume, she gives the results of a lifetime's experience, and, addressed by a woman to those who have care of the sick, it can not but make a good impression. The language is clear and concise, and her deductions are based on a very large experience, and upon the facts of science.

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INTRODUCTION.

ORIGIN OF MEDICINE.

THE practice of medicine undoubtedly arose from the wants of the people, who being subject to pain and disease, would naturally endeavor to find some means of relief. As hunger was the first incentive to procure food, and the vicissitudes and inclemency of the weather the first to cause the building of houses and the manufacture of clothing, so medicine grew out of the natural want of means to relieve pain, shorten the course of disease, and prevent death.

In the early ages of the world, the history of medicine is involved in much obscurity. For centuries there was no written medicine, and what knowledge of simples they possessed was handed down from parent to child, increasing as they learned the value and use of medicinal plants. We do not learn that there were any men who devoted themselves to the practice of medicine, but in some countries when a person was suffering from a severe disease, he would sit by the road side and get the advice of the passers by, as possibly some one would have seen the disease before, and be able to tell him of means that would give relief.

If we consult the Bible, we will find that the Jews must have possessed considerable knowledge of medicine, and that some men had at an early day devoted themselves to

the care of the sick, and were called physicians. Thus in Jeremiah viii: 22, the prophet says: "Is there no balm in Gilead; is there no *physician* there? why then is not the health of the daughter of my people recovered." And in Job xiii: 4—"But ye are forgers of lies, ye are all *physicians* of no value." Again in Proverbs xxvii: 22—"A merry heart doeth good like a *medicine*, but a broken spirit drieth the bones;" a saying as true to-day as when spoken by Solomon. Jeremiah again speaks of medicine, xxx: 13—"There is none to plead thy cause, that thou mayest be bound up: thou hast no healing medicine." In the New Testament we frequently read of physicians and medicine, and every reference tends to show that the art was held in high esteem. Still the practice of medicine must have been in a very rude and imperfect state, as they knew but little of anatomy and physiology and the kindred sciences, and we are forced to the belief that it consisted in a traditional knowledge of the action of vegetable remedies.

Renouard in his history of medicine remarks: "We have seen that the first notices of medicine go back to the earliest infancy of society, in all the countries of the world; so that we may repeat the statement of Pliny, that if there exists any nation which, at any epoch of its history, was without physicians, there is not one in which we do not find some vestiges of medicine."

Greece, which was for so many centuries the center of civilization and arts, first developed medicine as an art, and had physicians. Even here the history of medicine is clouded with the mythology of the times. The Centaur Chiron is said to have introduced the art of medicine into Greece, and rejecting the fabulous accounts of his compound form, historians consider it probable that he was a prince of Thessaly, who lived about the thirteenth century before the Christian era. To his pupil Æsculapius, however, is ascribed the merit of first devoting himself to the cultivation of medicine as a science, and of having made

it a special pursuit. Hence he is called the god of medicine, and was deified by his countrymen after his death, who paid him divine honors, and erected temples to him in various parts of Greece.

His pupils and followers were priests in these temples, and took the name of Asclepiades. The temples were usually situated on high salubrious ground, near medicinal or other springs, and surrounded with groves of trees, which afforded shade, pleasant walks, and that agreeable variety so beneficial to the sick. These temples became a species of hospitals, to which persons resorted from all quarters for the relief of the diseases with which they were affected. Under the direction of the priests of these temples they underwent a variety of ceremonies, the immediate effect of which must have been on the imagination. Some, however, of the practices which were enjoined were of a dietetic nature, and were directly conducive to temperance and cleanliness—such as frequent ablution, and the abstaining from certain kinds of food.

Hippocrates, who is called the father of medicine, was born about 450 years before Christ, and was the most noted of the ancient physicians. He was educated in the temples of Æsculapius, and then traveled extensively; returning to his country rich in the materials he collected, he devoted his life to research on disease and its remedies. His writings, part of which have been preserved, show a very imperfect knowledge of the structure and function of the body, but a tolerably accurate knowledge of the symptoms of disease, and the remedies for its cure.

From this period up to the establishment of the school of medicine at Alexandria, some three hundred and twenty years before Christ, there was but little if any progress in medicine or its associate sciences. Up to this time dissections of the human body were not permitted, and were looked upon as a most heinous sacrilege. Now for a period of nearly one hundred years this study was pursued with great zest, and we may date from this a new era in

medicine. Galen, who obtained his knowledge at this place, about the one hundred and fiftieth year of the Christian era, was the most celebrated physician of his time. He afterwards resided in Rome, and was the favorite of the Emperors during its most prosperous days. His works have come down to the present day, and though crude and imperfect, they are still far superior to those that had preceded him. For over a thousand years his writings were deemed nearly perfect, and were authority for the majority of physicians.

From the time of Galen to the commencement of the fourteenth century, there was a gradual decline in medicine, as there was in all sciences, until in the dark ages it had sunk almost to its primitive condition. During this period anatomical research was abandoned, and the books of Galen obscured by the comments of ignorant men were the only guides. For a portion of this time medicine was cultivated by the Arabs with considerable success, but with their decline the most of this knowledge was lost.

From about the year 1315, the study of anatomy was again pursued by dissections of the human body, and from this time we discover a slow but permanent advance in medical science.

Paracelsus, who was born about 1506, though a man of no principle, and considered by his compeers as almost insane, was the father of the mineral treatment. Though known before, he introduced into general use, preparations of mercury, antimony, gold, &c., and claimed that in them he had found the essence of life. Like many who have followed him in the use of the same means, we are informed that his practice was very unsuccessful, so much so that he could not remain longer than a year in a place. Not only so, but Andrew Libanius assures us "that he injured a multitude of people and did not cure them; and that he killed a good number, or put them in a worse state than he found them."

Up to the year 1600 medicine advanced but slowly,

there being but little improvement on the works of Hippocrates and Galen, except in the study of anatomy. The circulation of the blood, which lies at the bottom of all sound knowledge in physiology and practice of medicine was yet to be discovered. It seems singular that for so many hundreds of years the human body should have been under the observation of a class of men who devoted their time to the relief of disease, without this, the most important of its functions, having been discovered. It was known that the veins contained blood, but supposed that it proceeded from the liver, which was said to make blood. The arteries were said to contain air, which was derived from the lungs and conveyed by them to all parts of the body. In two thousand years no physician had seen blood issue from a cut artery, yet in these days it is noticed frequently. William Harvey, a native of England, first made known the true theory of the circulation of the blood in 1613, though it was not adopted by the profession for many years, or without strenuous opposition.

From this period up to the present time medicine has made most rapid progress, especially within the present century. Anatomy may now be said to be perfect. Physiology has advanced almost to the state of a positive science. Chemistry now ranks as one of the sciences, and the practice of medicine and surgery, though deficient in many respects, possesses a degree of definiteness that would not have been deemed possible two hundred years ago.

SYSTEMS OF MEDICINE.

From the earliest periods of which we have any knowledge there has been more or less diversity of opinion among medical men, and at times has resulted in the organization of distinct systems or sects in medicine. It was as much the case among the Grecians, and in the days of Galen, as at the present time. Some men would found a theory of disease and lend every circumstance to its

proof, and make all remedial measures conform to it. Theory has been the constant clog to the practice of medicine, as doctors are the most stubborn of men and will never give up a theory if it can be avoided. Not only are they noted for stubbornness, but they have a high regard for authority, and will rarely act unless they can find a precedent.

Naturally we would expect to find changes progressing slowly, and improvements would have to be well tried and stand the test of time before they would be received as a part of medical knowledge. Reform in medicine or the propagation of new ideas, is not tolerated, and he who endeavors to get in advance of the present state of the science will meet with most bitter opposition. Thus when Harvey discovered the circulation of the blood, he was denounced as a charlatan, and the profession were so exasperated that nothing too severe could be said against him. So, likewise, when Jenner published his discovery of vaccination as a preventive of small-pox, nearly the whole profession rose up in arms against him. He was denounced from the pulpit as flying in the face of the Almighty, endeavoring to thwart his purposes, and the physicians accused him of desiring to introduce a horrid disease from the animal, which would render the sufferer beastly if it did not maim him for life. He lost his private practice and his good name on this account, and it was not for some ten or fifteen years that the merits of his discovery were recognized.

So it is in the present day. Those who twenty or thirty years since commenced their efforts to arrest the destructive use of the lancet, mercury, antimony, etc., were denounced as quacks and empirics, and every effort made use of to put them down. They convinced the people that these medicines were injurious, and thus effected a radical change in medical practice. The most prominent systems of medicine in this country at the present time, are the Old School or Allopathic, the Homœopathic and the Eclectic.

ALLOPATHIC MEDICINE.

A certain class of physicians claim to be *regulars*, and the direct descendants of Esculapius. They further claim to possess all the science and literature of the profession, and to be the physicians par excellence. To hear them talk or read their works, it would be supposed that they were the embodiment of perfection, and that it would be impossible for any persons outside of their ranks to know anything of the healing art. Yet it was these same men that twenty or thirty years ago gave calomel by the tea-spoonful, and in every disease, and that bled in almost every acute affection.

There has been a very marked change for the better in this school. They have been forced by public sentiment to almost entirely discard mercury, antimony and the lancet, and to adopt other and milder means of treatment. It is true, many hold on to their old errors with great tenacity, and others have discarded them under protest, and have not as yet become acquainted with better means. But the change is going on, and they will be forced to complete it.

It is claimed that the word *Allopathic* is not an appropriate designation, and that they do not practice exclusively by this method. An allopathic method of cure is one in which the remedies administered produce phenomena of a different character from the disease. It is a cure effected by *counter-irritation* or *antagonism*; in other words, by establishing an artificial or secondary disease that shall displace the primary one. This practice is based upon the influence which one disease is known to exert over another; as for instance, the supervention of diarrhœa arresting some other affection, the disappearance of an internal disease on the appearance of a cutaneous eruption, etc.

Many of our medicinal measures prove curative by exerting a stronger irritation than exists at the location of the primary disease, the effects of the remedies being produced in another part of the system and in a different

tissue. It is a well established law that the system will take cognizance of but one morbid process at a time, and thus if an artificial disease is excited of sufficient intensity, time is given for the original disease to get well, when the artificial one will subside of itself.

Though there is no doubt of the correctness of these positions, it may well be doubted whether it is a successful mode of medication. Thus it was formerly taught that the constitutional impression (disease) of mercury would in this manner cure fevers, inflammations, syphilis, etc., but experience has proven to us that the mercurial disease is worse than the maladies for which it was induced, and that it would have been better for the patient to have left the disease to the natural powers of the system.

All physicians except the homeopaths, practice to a considerable extent on the *antipathic* method. This consists in the use of appliances or medicines that produce effects of a nature opposed to the symptoms of the disease, hence the axiom, *contraria contrariis opponenda*. Hippocrates may be regarded as the founder of this doctrine, as he says: "All diseases which proceed from repletion are cured by evacuation; and those which proceed from evacuation are cured by repletion. And so in the rest, contraries are the remedies of contraries." Much of the practice of the present day is based upon this principle. Purgatives are given to relieve constipation; cold is employed to alleviate the effects of burns or scalds; narcotics to abate pain, etc.

Though physicians generally adopt the two methods of cure above named, they not unfrequently give medicine that acts upon the law, *similia similibus curantur*, or in plain English, that *like cures like*. They do not claim that either is perfect, but employ sometimes one, sometimes another, as experience dictates, believing that a *rational empiricism* is the best guide in the practice of medicine.

Our *old school* brethren are noted for their illiberality, their self esteem, and their antipathy to change. Ever ready

to investigate anything that is stamped as legitimate, born within the ranks, and that does not conflict with their prejudices, they reject with contempt anything that comes to them from without. They have changed greatly within the last twenty years, and the change is still going on, and we hope that the old errors will be forsaken in twenty years more.

HOMŒOPATHY.

The *Homœopathic* method of practice is that founded by Dr. Hahnemann upon the maxim "*Similia similibus curantur*," or in exhibiting remedies capable of producing effects similar to the disease for the removal of which it is given.

A few of the many examples claimed by the homœopaths as evidences of remedial agents producing effects similar to those of the disease for which they were administered, and by their so-called secondary effects proving curative, may serve to illustrate the doctrine which they maintain to be the only true one.

They assert that white hellebore has cured patients attacked with violent cholera, and yet it caused a disease similar to cholera, when exhibited. In a disease attended with great sweating, which occurred in England, called the "sweating sickness," it was treated successfully only by the use of sudorifics. Purgatives will cure the dysentery; tobacco occasions nausea and giddiness, and relieves the same; senna occasions colic, and is one of the remedies for this disease; ipecacuanha cures dysentery and asthma, because it produces hemorrhage and asthma; belladonna causes a sense of choking and horror of liquids, with fixed and sparkling eyes, and propensity to bite attendants—in short, a disease having the semblance of hydrophobia, which it is said this agent has cured. Opium relieves lethargy and stupor by converting it into natural sleep, and the same agent is a cure for constipation. The

vaccine disease protects from small-pox upon the same principle. Cold, either in the form of snow, cold water, or some freezing mixture, is found to be the best application to frost-bitten parts. In scalds or burns, relief is obtained by exposing the part to *heat*, or by the application of heated spirits of wine, or oil of turpentine. We can not better illustrate Hahnemann's views of the action of remedies, than by giving the language of Pereira. "The medicine sets up in the suffering part of the organism an artificial but somewhat stronger disease, which, on account of its great similarity and preponderating influence, takes the place of the former, and the organism from that time forth is affected only by the artificial complaint. This, from the minute dose of the medicine used, soon subsides, and leaves the patient altogether free from disease; that is to say, permanently cured."

Hahnemann conceives that the secondary effects of medicines are always injurious, therefore he recommends that no more be given than is absolutely necessary to cure the disease. Proceeding upon this principle, he has reduced the doses of medicines to such a minute state of division, that in many cases no human intellect is capable of appreciating the slightest influence from their administration. Many of them, when exhibited in full or ordinary doses, produce effects scarcely appreciable, and when reduced to the millionth, quintillionth, or even decillionth part of a grain or drop, (the usual dose being large, say one or two drachms of the powdered article, or sixty drops of the tincture,) how they then can exert any controlling influence over a disease that is grave, if they do so, as is asserted, is a mystery incapable of being solved by finite minds. To give credence to such a doctrine requires a stretch of imagination that we imagine few possess.

The method of obtaining these minute doses consists in reducing the solid to a powder, and mixing one grain of it with ninety-nine grains of sugar of milk—this is called

the first *attenuation*; the second attenuation is obtained by mixing one grain of the first attenuation with ninety-nine grains of sugar of milk; and the third by mixing one grain of the second with the same quantity of sugar of milk, as before. In this way Hahnemann proceeds to the *thirtieth attenuation*. Water is the diluent of liquid medicines, and the attenuations are obtained in the same manner—that is, by mixing one drop of the mother tincture or liquid with ninety-nine drops of water, and in this manner continuing the dilutions up to thirty, as in the case of solid substances.

The annexed table shows the strength of the different attenuations:

First attenuation,—one hundredth part of a grain.

Second attenuation,—one thousandth part of a grain.

Third	"	"	millionth	"	"
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Sixth	"	"	billionth	"	"
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Ninth	"	"	trillionth	"	"
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Twelfth	"	"	quadrillionth	"	"
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Fifteenth	"	"	quintillionth	"	"
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Eighteenth	"	"	sextillionth	"	"
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Twenty-first	"	"	septillionth	"	"
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Twenty-fourth	"	"	octillionth	"	"
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Twenty-seventh	"	"	nonillionth	"	"
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Thirtieth	"	"	decillionth	"	"
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The minuteness of the dose is carried to the same extreme, as seen by the following table, as presented by Pereira:

Charcoal, one or two decillionths of a grain.

Chamomile, two quadrillionths " "

Nutmeg, two millionths " "

Tartar emetic, two billionths " "

Opium, two decillionths " "

Arsenious acid, one or two decillionths of a gr.

Ipecacuanha, two or three millionths of a gr.

Such are the doses of the medicines used by this class of practitioners. They are exhibited in the form of pills

(pellets or globuli,) each pill being about the size of a poppy-seed.

Hahnemann asserts that the longer a powder is triturated, or the more a mixture is agitated, the greater will be the effect of the powder or mixture upon the system; indeed, he found rubbing or shaking develop the inherent virtues of medicines to such an extent, that he says, latterly: "I have been forced, by experience, to reduce the number of shakes to two, of which I formerly prescribed ten to each dilution."

Such are the doctrines, and such an outline of this far-famed system of infinitesimal practice.

The principal facts urged against the doctrine, may be embraced under four heads:

1st. Many of our most certain and valuable medicines do not act homœopathically; sulphur does not produce scabies, nor does cinchona, or any of its preparations, give rise to intermittent fever; and yet these agents are used with great certainty for the removal of the diseases named, and no one questions their utility. Andral took quinia without contracting intermittent,—and who has seen that disease, or one similar to it, follow the use of cinchona? We have often employed it, without ever witnessing such results. It may be urged, however, that the diseased state which previously existed, precluded the development of that disease. Nor have we ever seen scabies follow the use of sulphur; but, perhaps, the homœopathist might say the existence of a previous morbid state acted as a barrier to its occurrence. Acids and vegetable diet cure the scurvy, but they never produce a disease analogous to it.

2d. Pereira asserts that many homœopathic remedies would increase the original disease, as acrids in gastritis, cantharides in nephritis or cystitis, or mercury in spontaneous salivation.

3d. The doses in which these agents are exhibited, are so exceedingly small, that it is difficult to believe they

produce any effect on the system, and therefore we would suppose that the reputed homœopathic cures are clearly referable to a natural and spontaneous effort of the system, aided, perhaps, by strict attention to diet and regimen.

4th. Homœopathy has been put to the test in numerous cases, without the least perceptible improvement or change in the nature of the disease, and this under the immediate inspection of some of the most eminent members of that system of practice. "Andral tried it in 130 or 140 patients, in the presence of the homœopathists themselves, adopting every requisite care and precaution, yet in no one instance was he successful." Recently it has been put to the test, in some of the European hospitals, in a large number of cases; a given number of cases being treated homœopathically, and the same number of cases (all being similar) being left to the unaided efforts of the system,—regimen and dietetic rules alone being enjoined,—and the results were not very dissimilar in the two classes of cases.

If these be facts, the *attenuated* system of practice adopted by Dr. Hahnemann, can not be one upon which the practitioner of medicine can place reliance with any degree of confidence in diseases of a formidable character.

Whether we regard the homœopathic system of practice as wholly negative in its effects, or as positively curative, it matters not, so far as its merit is concerned. That it possesses merit, we do not feel at liberty to deny, but whether of a positive or negative character, is a question about which there is much dispute. So far as the rules of dietetics, as enjoined by homœopathists upon their patients are concerned, we have never seen any that surpassed, if indeed equaled, those which they have adopted. And so far, all will admit that their system of medication is positively useful and curative; and may we not inquire, is not much of the success which they claim for their practice, to be fairly and justly ascribed to this cause? Does not

that rigid regimen, that scrupulous avoidance of every article of diet of an oppressive or indigestible character, leave nature free to act, and does it not invite her to assert her own prerogative?—does it not leave the *vis vitæ*, the *vis medicatrix naturæ* unoppressed, unobstructed, and independent, by which her powers rally, and she throws off disease, and abnormal action is arrested? May we not reasonably account for many cures in this way? We think it is not unreasonable to award much credit to this system of practice, upon the grounds above named. Then if it be not regarded as positively curative in this respect, so far as a system of medication is concerned, yet it is important for the reason that it leaves nature free to act and rid herself of disease, and is, therefore, to be regarded as a highly valuable mode of *negative medication*. Do we not daily see febrile and inflammatory diseases relieved in this way, without a particle of medicine? Every one of common observation knows this to be an indisputable fact. How often do we see many of the most obstinate diseases relieved by the unaided efforts of the system. We have often seen patients recover, who we believed to be dangerously ill, but who, from an aversion to drugs, a fear of poisonous agents, penuriousness, or some other cause, did nothing of an active character. Then may we not truly say, nature is all-powerful in throwing off disease. If, then, nature effectually eradicates a vast number of diseases, and those that baffle the skill of the most experienced physicians, even when called at an early hour in their course, and aided by the best of care, may we not reasonably conclude that recoveries would be very numerous if no physician of any kind was called, and no medicine administered.

May we not reasonably and justly conclude, from what has been just stated, that the *attenuated* form of medication—the *infinitesimal doses*, often receive credit when none should be awarded to it; that their influence is imaginary, and not real; that they exercise no positive curative agency

in many, perhaps not in any case in which they are administered, but in which it is ascribed to them ; that their effects are *negative*, and that the powerful influences, benefits and advantages, claimed to follow from the exhibition of the millionth or decillionth part of a grain of *charcoal*, *common salt*, or of *silex* or *sand* (and all other agents when administered in a form so attenuated), and carried out according to the doctrines of Hahnemann, are but an imposition on the credulity of the people, which must be apparent to any one who investigates the subject. Does it not seem to be practicing upon the *expectant* plan wholly ? Does it not seem to be a mere *placebo*—the *bread-pills*, or *colored-water* exhibited in a new form ? To believe that a dose of the most simple agent, so minute that it is entirely beyond the conception of the human mind, exercises such a powerful control over the human system when in a state of disease, requires an imagination so acute (it seems to us) as it falls to the lot of but few mortals to possess. As well may we imagine that the millionth or decillionth part of a grain of our daily sustenance, taken three times a day, will be sufficient to sustain life ; that it will support the wants of the animal economy, and maintain all the varied processes of secretion, excretion and innervation, as that a similar amount of salt, charcoal, etc., will effect great sanative changes upon the human body when in a state of disease.

Although we can not repose confidence in the Hahnemannian system of medication as a whole—as a *positively curative* system—but must regard it as a *negative* one, yet we are fully satisfied it will be of great good to the medical profession, and to mankind generally. We have long since been fully persuaded that too much medicine was used—that the patient was too frequently and too largely dosed with drastic, corrosive, or poisonous drugs, without any definite object or well-defined reason in view on the part of the physician. Less medicine will be found to be to the advantage of patients, and physicians will learn

from the homeopathic system to administer it in smaller quantities, to give it less frequently and with a definite object in view, and above all, to *repose more confidence in the recuperative powers of the system*, when untrammelled by the use of nauseous, and often oppressive and disease-creating drugs. In this light we view homeopathy as positively advantageous, and as calculated to bring about, or aid in bringing about, an important reform in the practice of the healing art.

We regard the principle of "*Similia similibus curantur*," as laid down by Hahnemann in the administration of medicine, as true in some cases, but not as being an infallible or invariable rule, by which the physician is to be governed in all cases. Disease was treated upon this principle long before the day of Hahnemann; but when disease is treated in accordance with this axiom, the remedy, in order to prove effectual, must be given in sensible doses.

ECLECTICISM.

Eclecticism in medicine has prevailed, to a very considerable extent, from the foundation of the Alexandrian library to the present time. At some periods they were termed Empirics, at others Methodists, at others Eclectics, and were always opposed to the Dogmatists. These latter adopted certain theories or dogmas, and made them the basis for their practice. These were, necessarily, very crude, and often possessed not the slightest foundation in fact, as their knowledge of anatomy, and especially of physiology, was most meager. Those who would not adopt these theories, were forced to take the ground that observation and experience were the true guides in the practice of medicine.

The term *Eclectic*, by which a large and growing class of the medical profession are now designated, is derived from a Greek word which signifies *to choose*; we use it,

however, in both the past and present tense—we have chosen, we are constantly choosing.

We have chosen, what? To answer this question properly it will be necessary to glance at the medical practice of forty years ago, at the time this medical reform was commenced. At that time we find that the principal agents used in combating disease were *calomel*, *tartar-emetic*, *arsenic*, and the *lancet*: the theory was that in all acute diseases there was an excess of vitality, and that this must be reduced by depletion before the patient could recover. The results of this practice, and the theory upon which it was based, were very unsatisfactory, especially to the people who had to suffer the penalty—in many cases loss of useful lives, in others constitutions broken down, the patient being but the wreck of his former self.

Calomel was the *Samson* of medical agents in those days, and there was no disease in which it was not recommended and used. Thus we find in Mackintosh's *Practice of Medicine*, published as late as 1844, this agent was recommended in every disease named, except six. Those who can recall the practice of even twenty years back, know that when the doctor was called, the first thing given in almost every case was *calomel* and *jalap*, and very frequently it was the last, and in many cases nearly or quite all. In the Southern and Western States it was used in moderation, *i. e.*, from ten grains to a tea or table-spoonful at a dose. Many followed the rule of Professor Cook, of Louisville, that if an apparent effect was not produced by the remedy the first day, double the dose the next, quadruple it the third, and so on, until, as we have authentic accounts, one-fourth, one-half, or in one case of bilious fever, over one pound had been introduced. To thinking minds this indiscriminate use of one agent, in all diseases, should have been evidence of the utter futility of employing a physician; and doubtless it would, if people had been permitted to think. The bad results following the use of this agent, and other mercurial prep-

arations, are at this day known to all; in other publications their effects have been sufficiently pointed out.

We have chosen to discard this agent and replace it with vegetable remedies that "never" leave a disease worse than that for which they were given.

Tartar-emetic, though not resorted to as frequently as calomel, was guilty many times of *manslaughter*. Thus in the days that I speak of, it was thought that inflammation of the lungs could not be treated without the use of this agent. In proof that it is clearly chargeable with murder, let us examine the statement of Dr. Deitl. In order to show the comparative value of treatment, he reports three hundred and eighty cases of inflammation of the lungs. Eighty-five were treated by blood-letting, one hundred and six by large doses of tartar-emetic, and one hundred and eighty-nine by diet and rest alone. Of those treated by blood-letting, seventeen or 20.4 per cent., died; of those treated with large doses of tartar-emetic, twenty-two, or 20.7 per cent., died; while of those treated by diet and rest, only fifteen, or 7.4 per cent., terminated fatally. These were cases of a similar character, and yet we see that the cases being as one hundred and six tartar-emetic to one hundred and eighty-nine diet and rest, this agent is chargeable directly with the lives of at least ten persons. *We therefore choose to discard this agent.*

Arsenic, though not as frequently used as the other two, has yet a large amount of suffering, and even life to answer for. Pereira, an eminent authority, states, that "Small doses of *arsenious acid*, continued for a long period, act as a slow poison; and if persevered in, will ultimately occasion death. The same effects take place in a shorter period, from the administration of large medicinal doses. Sometimes the digestive apparatus, at other times the nervous system, first show symptoms of the poisonous operation of this agent. Hahnemann has graphically described the condition of *slow poisoning* by arsenic, as "a gradual sinking of the powers of life, with-

out any violent symptom; a nameless feeling of illness, failure of the strength, an aversion to food and drink, and all the other enjoyments of life." Notwithstanding these facts are known to the profession, we find that this agent is still employed, two lives, *to my knowledge*, having been lost within the last year by slow *medicinal arsenical poisoning*. We choose to discard this agent because of its dangerous character.

BLOOD-LETTING.—Forty years ago, yes, even twenty years ago, blood-letting was the fashion, and both physicians and people supposed, that acute diseases could not be treated without it. Bleeding was so common that it was customary with some to be bled every spring, sometimes twice a year, as a *preventive* measure to ward off disease. "The inveterate theoretical bleeder," says Dr. Ticknor, "will bleed in the most opposite states of the system; he will bleed to check the circulation, when it is too rapid, and to subdue febrile reaction—when the circulation is depressed, he will bleed to restore it, and to increase the heat of the body when it is below a healthy standard—he draws blood to subdue reaction, and to excite it—he calls bleeding a sedative, and again he says it is a stimulant. With such a man bleeding is a *sine qua non*—it is almost food and drink, and is about equivalent to vomiting and purging—it is refrigerant in summer, and calefacient in winter—a hobby which he rides either rough or smooth shod." The great majority of physicians, at the time I speak of, were just such theoretical bleeders.

The evil effects of blood-letting necessarily vary with the nature of the disease in which it is employed. In fever and inflammations it was employed to subdue excitement and lessen inflammatory action, and yet in many cases it is well known that it produced but a temporary effect—reaction came on and the disease for which it was employed was aggravated. The consequence of this reaction was, that another depletion was again prescribed for its removal; blood is taken to full syncope—again relief is felt—

again reaction and the local symptoms return, the practitioner continues to bleed, and is astonished at the obstinacy, course and termination of the disease, which under such circumstances generally terminated in dropsical effusion, or in convulsions, or in delirium running into coma, or in death from exhaustion or one of the foregoing states, or in a partial subsidence of the original malady, and protracted convalescence. Dr. Dunglison, an eminent old-school authority, says, "The extent to which blood-letting should be carried, in cases of violent internal inflammation, is often a matter of great difficulty with the discriminating, but of no difficulty whatever with the reckless and uninformed. In this state of blissful ignorance the latter continues to bleed, and consoles himself, when the fatal result has been hastened—perhaps mainly induced—by his agency, that the sufferer has fallen a victim to an incurable malady."

President Jackson was in the habit of relating an anecdote, which exemplified the satisfaction often felt at the exhibition of such energy on the part of the practitioner. Traveling from Virginia toward the North, he rested for the night at a tavern on the road; soon after his arrival at which, the hostess came in from a neighboring house with the females of her family, all exhibiting marks of deep distress. He was informed that they had been witnessing the parting scene of a young friend, who had died of some acute affection. "But thank God!" observed the the contented matron, "every thing was done for him that was possible, for *he was bled seven and twenty times.*"

I make the assertion that the lancet has murdered thousands, and can prove it from the best authorities of old-school medicine; that it is inefficient as an agent in the cure of disease, is now readily admitted by a large majority of the profession. Eclectics *choose* to discard the *lancet*.

The THEORY that there is an excess of vitality which needs reduction in febrile and inflammatory disease, comes

very far from being a *fact*. We *choose* to believe and teach, that a person laboring under disease is actually debilitated from the commencement—that the disease itself is an evidence of depressed vitality. Practising upon the first proposition, we would resort to blood-letting, strong cathartics, mercurials, etc., to reduce vitality to that point that reaction could not take place. Considering the other to be true, we carefully husband the strength of the patient, until by appropriate remedies we remove the cause of disease.

Eclectics started from the common platform of professional knowledge with a declaration of dissatisfaction with the usual results of the healing art; of a certainty that a true therapeutic science might be discovered, and of the imperative duty of all practitioners to investigate all successful systems of practice, and avail themselves of every successful agency which has been or can be discovered. The result has been that our *materia medica* has been greatly enlarged by the investigation of the properties of our indigenous plants; many of which are so valuable that they are now being used by physicians of all schools. So great a change has thus been made by new remedies, new applications of old ones, new compounds, and new principles of treatment, that four-fifths of the prescriptions of Eclectic practitioners, in every variety of disease, are entirely different from those which are usually made by our old-school friends. It may be said, therefore, that the Eclectic system of medicine has wrought a decided revolution, and presents an essentially new system of practice, which may be justly styled the American system, as it has been developed by the labors of American physicians.

The peculiarities of the Eclectic practice are too numerous to be learned, except by a thorough course of study. These peculiarities have arisen from the gradual adoption of one improvement after another, until the whole system of practice has been essentially changed, and all those

measures which are calculated to impair the vital powers, have been substituted by more successful methods. It is a cardinal principle of the Eclectic system, that no medical treatment should be allowed which permanently impairs or injures the vital powers; that no such treatment is, in any case, necessary or proper, and that in the choice of remedies, we should prefer those which are safest, and calculated to act most nearly in accordance with the laws of health.

Hence, we reject, *in toto*, the most pernicious features of old-school practice. Not that we consider them entirely useless; but because they are so far inferior in their results to the measures on which we rely. The habitual internal use of certain intensely poisonous metals, as mercury, antimony, arsenic, lead, copper, etc., we consider a gross violation of the dictates of medical philosophy and experience—an egregious delusion which has brought millions to a premature grave, and which, at the present time, maintains an immense amount of human suffering among the living. This delusion has arisen from a profound ignorance of the true characters of a number of important medicines, and an indifference to the enormous evils now arising from the mercurial practice. It is not known in the Colleges, that our vegetable materia medica furnishes far better agents for all the purposes of the healing art, than these destructive metals; and that every purpose for which it is supposed that mercury is necessary, can be accomplished better without than with its agency. The fancied necessity of mercury, for the sake of its power over the liver, is well known by all Eclectic practitioners to be a gross delusion; without the use of a particle of mercury, and without its dangerous morbid consequences, they produce much more efficient cholagogue and alterative action than mercurial remedies can maintain. The medical profession are aware of the dreadful evils of a mercurial practice, and would gladly get rid of the two-edged weapon which cuts alternately the disease and the

patient, if they were informed by the colleges and authors, upon whom they rely, of the powers of other and better cholagogues.

THE PHYSICIAN.

To obtain the highest degree of skill in any art, it is necessary that it should be studied with care, and that the entire time should be devoted to it. Hence, in the practice of medicine, the most intricate of all arts, it becomes necessary that those who pursue it, should have a thorough medical training, in order to become skillful workers. Not only does it require reading, but, as in all other arts, it requires that experimental knowledge which is only obtained in well-conducted colleges and hospitals. Time is necessary for this; the printer who sets this type has served his apprenticeship of three or four years before he is entrusted with the entire management of his work; the foreman who places the form on the press, and watches the action of the machinery as the sheets go through one by one, has served the same length of time; it is the case with the man that builds your house, that makes your coat or your pants, or that follows any of the common avocations of life. How much more necessary is it, that he who takes charge of the intricate mechanism of the body, and undertakes to modify its action during disease, and prevent its dissolution, should have served a sufficient length of time to become thoroughly conversant with the entire art of healing?

Not only is it necessary that he should have spent years in the study of his profession, but he must also have a love for it, in order to prove successful. "An instinctive impulse," says Hufeland, "to relieve a sufferer, was the origin of the healing art. This pure and noble sentiment must always prevail, to make the practice of medicine answer its ideal, and render it a blessing to both physician and patient. To live for others and not for himself, is a

physician's vocation. He must be ever ready to sacrifice his repose, advantages and comforts, to the end of saving the life and health of his fellow men."

As he is brought constantly in contact with the family in the most intimate relations of life, and exercises a marked influence either for good or evil, it is essential that he should be a moral man, and one whose influence and example will be constantly on the side of truth and virtue. Many times the happiness of single individuals, and whole families, lies in his discretion, and he is frequently placed in positions in which a word of advice, coming, as is known, from a pure and truthful heart, will change the course of an individual's life, and prevent much misery and suffering.

In the choice of a physician, therefore, always select one who has pursued the study of medicine diligently, and for such length of time as may reasonably be supposed to give the necessary knowledge of the healing art. Give preference to those, other things being equal, who have completed a regular course of instruction in a Medical College, as they will almost invariably be found more conversant with disease, and understand better its appropriate treatment. It will be observed that certain physicians take a very great interest in their profession, and in the welfare of the sick entrusted to their charge. They do not consider any sacrifice of time or comfort too great to be made, if it conduces to the recovery of their patients—are ever ready to render their services, to rich and poor alike, and seem to derive their greatest recompense from the relief of suffering and arrest of disease. From such, choose your medical adviser. If a physician is a tippler, a libertine, a profane swearer, or is the subject of any vice that you would object to in your family, do not employ him, if it is in your power to do otherwise.

The physician's influence is very great, either for good or evil, and his example is especially marked by the young. The truly good physician will, therefore, prove a moral

blessing to a neighborhood, while the immoral one will continually be an evil example, and a moral pest that should be got rid of, no matter what may be his medical qualifications.

THE PRACTICE OF MEDICINE.

The practice of medicine is one of the most laborious callings that man follows. Passing from years of severe, unpleasant and exhausting study, he becomes every body's servant for a meager compensation. He can claim no time as his own, not even the hours which others devote to rest, as he is alike liable to be called at night as in day. He is brought constantly in contact with the dark side of life's picture, and is a constant observer of all that is most repugnant to others. Constant contact with suffering, disease and death, attends his daily work, and were it not for the evidence of suffering relieved, of disease arrested, and of death warded off, it would be the most irksome, if not loathsome of all callings.

Its reward is the consciousness of a good work well done, and the gratification that a good man feels when he is able to minister to the wants of his suffering fellow creatures. The honorable physician rarely becomes rich, and not unfrequently he finds himself unable to lay up a competence against the time when he is worn out and unable to follow his profession. It is not generally because he has not enough to do, but because those that receive his services soon forget the benefits derived, and fail to pay him his just dues. How often have I seen the country doctor called out of his bed on cold, stormy nights, to visit a patient some miles distant, without even receiving a dollar for his trouble, or hardly thanks; and yet these persons were able to buy fine clothes and waste their time in idleness and dissipation.

If there is one debt more than another that should be paid promptly, it is a doctor's bill. No person, other than

those who have practiced medicine, can appreciate the severity of the labor, both physical and mental, and surely it deserves to be promptly and fully requited. Pay your physician immediately on the cure of the patient, and you will feel better, your bill will not seem so large, and you will interest the doctor in your welfare, so that you will receive increased attention and skill should you need him again. There is nothing that so quickens and gives increased ability to the laborer, as prompt and certain payment.

Never change physicians on trivial grounds, as much injury to yourself and family may result from it. No one can know the constitution and peculiarities of a person as well as the physician who has known him long, and attended him in previous attacks of disease. People differ very markedly from each other, and in no respect do we notice this difference more than in sickness, and in the action of medicine upon the system. This is a strong argument not only against change of physicians, but also for retaining the same one in a neighborhood as long as may be possible. It is possibly beneficial to have a change of preachers, of lawyers, of school teachers; but no profit flows from a change of doctors. Select your system of medicine from careful examination of its merits, and select your physician with reference to his moral and professional reputation—then stick to him, and make him one of your family, your counselor in health, and your careful attendant in disease.

QUACKERY.

There is no calling in life that is so burthened with rogues as the practice of medicine. A certain noted quack who was making his \$25 to \$50 per day, remarked that there were many people who would be humbugged by some body, and he might as well take their money as any other person. It is very true that the public are

ready to give credance to almost any statement, and, quite frequently, the more marvelous it is, the more greedy they are for it. As before remarked, people know less of themselves than they know of any thing else, and the general impression is, that the family physician, though a worthy man, runs in the old ancestral grooves, and can not know much that is new; in fact, is a very slow, mulish, and stupid individual. Hence they are ready to give welcome to any statement which seems plausible on its face, if it promises to meet their wishes.

It is an every-day occurrence in every neighborhood for persons to consult entire strangers who have come to their knowledge by flashy advertisements, and entrust their health and lives to their hands, when on the same authority they would not have purchased a new variety of corn or wheat, or a pint of turnip-seed. This credulity is frequently turned to account by persons who have no knowledge of medicine, except a few old receipts, and who sometimes make large fortunes by their impositions.

A very noted character in this line, in New York City, was supposed so have realized \$500 per day from letters received from his dupes, until his career was arrested by the police. We have had two examples of the same kind in this city, and the papers of our country are still flooded with their advertisements. Many of them profess to devote their whole time for the good of humanity, and promise to send such information as will cure the most serious diseases, without fee or reward. Many write to them, as it costs nothing, and get their receipts, with high flown panegyrics on the advantages that have been or may be gained by the medicine. But on application at the drug-stores they find no such medicines, and finally send to the advertiser, who charges them round prices for worthless and sometimes injurious stuff.

The patent medicine and nostrum manufacturers and renders fatten off of the people in the same way. They advertise to cure all curable and many incurable diseases,

and furnish certificates signed by ministers and others that they can accomplish what they profess. The result is that they sell millions of dollars of worthless trash yearly, that in the end does more harm than good. Immense fortunes have been realized in this way, and others are being made constantly. There is no cessation to the demand, though the old nostrums are constantly being replaced by new. No person is now so foolish as to swallow a dollar's worth of Townsend's or Guizot's, or Bull's Sarsaparilla a week. But they will take an equal quantity of Plantation or some other kind of bitters, or some other person's alterative. There seems to be a constant desire for medicine, whenever a person has the slightest ill feeling or ache, and there are few who would not put more reliance in the most absurd nostrum than they would in the curative powers of nature.

I do not say that all patent medicines are humbugs, for I know that some of them are prepared with care, and can be used with advantage in some cases. But I believe that it is better in all cases for the person to take such remedies as are known to him, or to put himself under the care of a physician. It is an error that combinations of many different remedies are better than a single one, and the best physicians will tell you that a single remedy, if properly selected, is much better than a combination. Patent medicines are compounded of common, cheap, and often inferior drugs, you do not know what they are, and they come to your notice in a suspicious manner, therefore it is wise to purchase from a reliable dealer such individual medicines as are desirable for domestic use.

"The history of quackery, if it were written on a scale that should include the entire number of these frauds, which may be generally classed under the head of humbugs, would be the history of all ages and climes. Neither the benefactors nor the enemies of mankind would escape mention. In the success that has in every century attended the rascally enterprises of pretenders to the art of

medicine is found a touching evidence of the sorrow, credulity and ignorance of the generations that have passed, or are passing, to the silent home where the pain and joy, the simplicity and cunning, of this world are alike of insignificance. The hope that, to the last, lurks in the breast of the veriest wretch under heaven's canopy, whether his trials come from broken health or an empty pocket, or wronged affection, speaks aloud in saddest tones, as one thinks of the multitudes who, worn with bodily malady and spiritual dejection, ignorant of the source of their sufferings, but thirsting for relief from them, have gone from charlatan to charlatan, giving hoarded money in exchange for charms, cramp-rings, warming-stones, elixirs, trochees, etc., warranted to cure every ill that flesh is heir to.

“The scene from another point of view is more droll, but scarcely less mournful. Look away from the throng of miserable objects who press around the empiric's stage; wipe out for a brief while the memory of their woes, and regard the style and arts of the practitioner who, with a trunk full of nostrums, bids disease to vanish, and death to retire from the scenes of his triumph. There he stands—a lean fantastic man, voluble of tongue, empty-headed, full of loud words and menaces, prating about kings and princes who have taken him by the hand and kissed him in gratitude for his benefits showered upon them—dauntless, greedy, and so stupid in falsehood that his crazy-tinted brain half believes the lies that flow from his glib tongue. Are there no such men amongst us now—not standing on carts at the street corners, and selling their wares to a rabble—but having their seats in honored places, and vending their prescriptions to crowds of wealthy clients?”

PART I.

ANATOMY AND PHYSIOLOGY.

A knowledge of the phenomena of life, or Physiology, should be possessed by every one; not only that we may know how to preserve our health, but also as a means of moral and intellectual improvement. Yet we find comparatively few outside of the medical profession who can describe or account for the most common functions of their bodies. It seems singular that men and women of intelligence should be content to witness the varied workings of such a complex and intricate piece of mechanism as their own bodies, without the desire of inquiring into and knowing something about the different processes by which that *life*, of which they are so tenacious, and which they are so loth to give up, is continued from day to day.

People are generally eager to acquire knowledge, especially if the pursuit is entertaining and satisfies curiosity. Place a man in one of our *machine shops*: he is immediately interested. He watches the action of the large engine in the corner, which keeps the almost endless shafting, with the varied and complex machinery, in motion; he watches with interest the motion of the piston in the large cylinder; sees the automatic machinery by which the steam-valves of the cylinder are opened and shut; in fact, in a short time, if he has ordinary inquisitiveness, he will master a knowledge of its workings. Let him continue his observation for a few weeks, and he will have obtained a good knowledge of almost all the processes of the manufacture of a steam engine. The same man has observed

the workings of his own system for years, and yet will not be able to tell you what purposes are subserved by the continued and never-ceasing action of the lungs, by that wondrous and continuously-acting *hydraulic* mechanism, the heart, or by the daily introduction of food into his stomach. In the one case his curiosity prompts him to investigation; while in the other, though constantly placed in a position to observe and investigate, he yet deliberately shuts his eyes, and passes through life knowing less of himself than of any thing else. Why is this the case? If I were to account for it, I should say, that popular opinion has long since decided that this knowledge is private property, belonging exclusively to physicians, and in which the public have no interest, as they pay a class of men to investigate such matters, and give to them the conclusions drawn from such investigation, in the shape of *medicine*, whenever called upon.

Should this state of things continue? I believe that a knowledge of Physiology, Anatomy, and Hygiene, is just as important as a knowledge of arithmetic, geography, history, etc., and that it should form a part of common-school education. The time is coming, and even now some progress is made toward it, when works on these subjects, written in plain language, will be placed in the hands of every school-child. The objection to this is, that these subjects are *dry*, and can not interest the young, or even any one, except the physician. This is not the case. There is nothing as interesting as the study of the human body, merely as a piece of complicated but masterly workmanship; and how much is this interest increased when we consider it as the dwelling of an intelligent soul, which, but for this body, would be cut off from all intercourse with things of earth.

Man is composed of six varieties of material, which, variously combined, form the most complex structures of the body, and are adapted to the various functions of life. These are bone, cartilage, fibrous tissue, muscular tissue,

nerve tissue, and adipose tissue or fat. These are continually wearing out and being replaced, so that the man of to-day has in all probability no single atom of matter that was in his body twenty years ago; in fact, our best observers conclude that man is renewed about every seven years. This renewal is a necessity of his existence, as these various materials possess but a limited vitality, in other words, retain their form for but a limited period, when, unless the body dies or loses its properties it must be renewed. This renewal takes place, as will hereafter be described, by the continued digestion and appropriation of the food we daily consume.

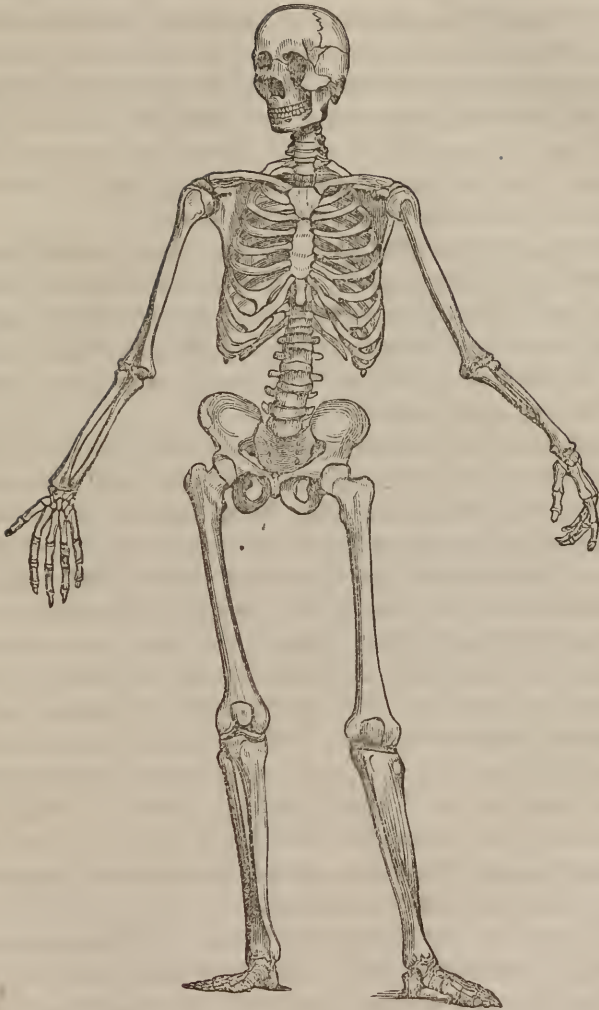
BONE.

The bones form the frame-work of the body, and give shape and support to its various parts, and furnish a mechanism, which, when acted upon by the muscles, give locomotion and the various actions necessary to our support and well-being. The bones of the body are 246 in number, divided into *long, flat, and irregular*, which, when placed together in their natural order form a *skeleton*. The skeleton (see Fig. 1,) is divided by anatomists into *head, trunk, and extremities*, the head being divided into two parts, cranium and face, the extremities into upper and lower.

The cranium consists of 8 flat bones joined together, which form an oval cavity for the brain. The bones of the face are 14 in number, mostly small, and form the walls of the orbits, nose, and mouth; in addition, the 32 teeth are enumerated as bones, and there are 3 small bones in each ear.

The trunk is composed, first, of a column of irregular bones called the spine or back-bone, 26 in number, the 24 superior being called true vertebræ, and the last two false vertebræ. The true vertebræ are divided into three varieties, according to their situation: 7 cervical, in the neck; 12 dorsal, that give attachment to the ribs; and 5

FIG. 1.



THE SKELETON.

It consists of 246 bones ; 60 in the head ; 52 in the trunk ; 64 in the upper extremities ; 62 in the lower extremities, and 8 sesamoid bones.

lunbar, in the loins. Arising from the dorsal vertebræ are 12 bones on each side called ribs, which pass downward and forward to be attached by cartilages to one bone in front—the sternum or breastbone. At the upper part of the neck below the lower jaw is one bone, the hyoid, forming half an arch, supporting the air-tube. In all, the trunk has 51 bones; 26 of which forms a column which supports the head and upper extremities, and 25 form a bony cavity to contain the lungs and heart.

The upper extremities have 32 bones each, divided into a shoulder, 2 bones; arm, 1; forearm, 2; wrist, 8; and hand, 19. The lower extremities have 31 bones each, divided into hip, 1; thigh, 1; leg, 3; and ankle and foot, 26. In addition to these, there are in the body eight small bones, called *sesamoid*.

Long bones are found in the upper and lower limbs, and consist of a shaft of dense hard bone, and extremities of spongy bone; the shaft being smaller in circumference than the extremities, and containing a central cavity. The ends of long bones are covered with articular cartilage, which gives them a smooth, glistening surface, preventing friction where they play one upon another. A long bone is usually broken in its shaft, not because it is weaker there, but because it is not so well supported by fibrous tissue. Flat bones are found enclosing cavities, and are composed of an outer covering of dense bone, and an internal spongy portion. Irregular bones are found where great strength is required with but little motion, and have an external investment of compact bone, while their center is spongy.

All bones have an external investment of fibrous tissue, forming a membrane called the *periosteum*, which is, to some extent, the source of growth and repair, as late investigations have proven that a bone may be reproduced if the periosteum is left entire. This membrane is liable to inflammation, the pain being very severe, and in some cases, as in syphilis, an irritation is produced

which causes an increased deposit of bone, and the formation of an excrescence termed a node. Bones receive a considerable supply of blood, though the vessels are all small; hence there is never much bleeding. Their nervous supply is limited; so that it is a very great mistake to suppose that cutting a bone will give rise to much pain.

ARTICULATIONS—JOINTS.

When two bones come together, there is said to be an *articulation*; and these are divided into two kinds—immovable and movable. In an immovable joint, the bones come directly together, and, in some cases, are adherent, as in the bones of the skull. The movable may be divided into two kinds, in the one of which the bones are united by an elastic tissue, passing from end to end; in the other the bones move one upon another, the surfaces coming in contact being free. In the last variety, the free extremities or surfaces of the bones is covered with cartilage, and this again by a delicate, smooth membrane (synovial membrane), extending from one bone to the other, which secretes the synovia or joint-water, for the lubrication of the opposing surfaces. The bones are tied together by fibrous bands called ligaments, which pass from one to the other in such situations as to permit of the necessary degree of movement.

CARTILAGE.

Cartilage (popularly called gristle), is found where a considerable degree of strength is required, and it is necessary that a part shall maintain a permanent form, and still possess a certain degree of elasticity. We thus find it situated between the bones of the spinal column, and so arranged as to form a cushion for them, and thus prevent those numerous jars to the body which would prove so annoying and injurious. Again, it forms the connecting medium between bones, and permits a limited motion, as

in the cartilages of the ribs; and lastly, it forms the frame-work of an organ, as in the *larynx*, or organ of voice—no other material possessing the necessary elasticity with permanence of form. I might have stated, that all the bones are first represented by cartilage, the bony material being deposited in it, and finally in the adult taking its place.

FIBROUS TISSUE.

Fibrous tissue is that dense, white, and tenacious material that forms so considerable a part of the body. It is placed wherever strength is required, as at the joints uniting the bones, forming the investment or attachment of muscles—tendons. As a connecting medium, uniting together all parts of the body, and in each organ forming, so to speak, the basket in which other parts are placed, or threads with which they are bound together. It is a component of almost every organ and tissue, furnishing strength and a bond of union. A variety termed *yellow* fibrous tissue, possesses elasticity, and is found in the skin, forming some ligaments, and in the blood-vessels.

MUSCULAR TISSUE.

Muscles are divided into two kinds—the muscles of animal life, or voluntary, and the muscles of organic life, or involuntary. The first forms the large, reddish masses surrounding and situate on the bones; the second is white, and is found within the body as a component of some of the viscera, especially forming one of the coats of the entire alimentary canal, and of the bladder and womb, and probably of the arteries. If a muscle, or the *lean* of meat, be examined, it will be found to be composed of fibers, which pass like threads from end to end, and if a magnifying glass be used, these will be seen to be bundles of still smaller fibers—the ultimate fibril being not more than $\frac{1}{403}$ part of an inch in diameter. It is a compound

tissue, consisting of muscular tissue proper, and of fibrous tissue, which gives an investing sheath to each fiber, to each bundle of fibers, and to the entire muscle. The muscular substance terminating near the extremities of the muscle, the fibrous tissue continues on alone, forming the tendon, and giving the insertion to the bone. Each muscular fiber is marked by transverse lines at short distances, and it is found that in action each of these spaces are shortened. The muscular fiber of organic life is smaller, flattened, and is not marked by the transverse stripes, though capable of contracting; its bundles are white, while those of animal life are dark red, as in flesh.

Muscles are arranged in groups, so as to exert a great degree of force in the principal direction of movement, and at the same time, from their varied position and attachment, give every variety of movement. Take, for instance, the thumb; its principal muscles are in the palm, and form the large fleshy mass at the upper and outer part of the hand; five in number, their united action is to oppose the thumb to the fingers, but if we examine them separately, we find that each has a separate and distinct action at other times. The muscular mass on the anterior and posterior surfaces of the forearm, flex and extend the fingers, flex and extend the wrist, rotate the forearm, and perform those varied and intricate movements so distinctive of man.

NERVOUS TISSUE.

Nervous tissue, like muscular, is a compound tissue consisting of more than one element. It is divided into two marked varieties, gray and white; the first consisting of cells and granules, as will hereafter be described; the second being formed of fibers. A peculiar form of fatty matter enters largely into the composition of the brain and spinal cord, while fibrous tissue surrounding the nerve fibers forms a large portion of the nerve trunks.

This will be spoken of more fully when describing the nervous system.

ADIPOSE TISSUE—FAT.

Varying in quantity, we find adeps, or fat, in all parts of the body. In some persons it fills all inequalities, and forms a more or less thick layer under the skin, over the principal parts of the body. The fat is contained in an envelop of fibrous tissue, and this again in a net-work of the same; and the same fibrous arrangement that in one simply connects the skin to parts beneath, or one organ to another, will in another be so loaded with fat as to be an inch or more in thickness. Fat is combustible, and furnishes the larger portion of animal heat, so that these deposits of fat may be considered the storehouses of fuel for the body. In diseases in which the appetite and digestion is much impaired, these deposits are drawn upon; hence the great loss of substance.

COMPOSITE STRUCTURES.

The tissues above named are united in varying proportions to form complex structures or organs, having a specific function or action. Thus the skin, which forms the exterior covering, has, first, a dessicated, scaly investment, and is next composed of white fibrous tissue, yellow and red elastic tissues, blood-vessels, nerves, sweat glands, sebaceous glands, etc. The internal lining of the body, or mucous membrane, is similar to it; while, if we examine some of the larger organs, as the liver, we will find the same tissues arranged in a still different manner.

ORIGIN OF THE HUMAN BEING.

If we examine the ultimate elements of the body, we will find that it is composed of *oxygen, hydrogen, carbon, and nitrogen*—four gases—with the addition of a variable

amount of lime, potash, phosphorus, sulphur, etc. The principal part of the tissues is formed of varying proportions of the four elements first named, which is called a protein compound. Such a combination we find in eggs, milk, flesh, bread, etc., which furnish this material to the body. The first three of these, oxygen, hydrogen and carbon, are the elements of fat, starch, sugar, alcohol, etc., and are the heat producers, or fuel. These elements, separately or in varying combination, form the principal part of the globe we inhabit—water being formed of a union of two volumes of hydrogen and one of oxygen, while the air we breathe is formed of an admixture of four parts of nitrogen, and one of oxygen. These materials are very plastic, and are molded into many varying forms by the *vital* force, as we shall hereafter see.

Our food contains all the elements of our bodies, in such a state that the process of digestion fits it for appropriation by the various tissues. Some single articles of food contain all that is requisite, as flesh, milk, eggs, bread, etc., whilst others contain but a part, and though they will support life for a while, at last the body yields from a want of some material they do not contain.

DEVELOPMENT OF THE BODY.

Having thus glanced at the material of which our bodies consist, we now wish to learn the processes by which a living being is developed from them. With man, as with the plant, there must first be a seed or germ. This is furnished by the female parent, and is called the human egg. It is very minute, but perfect in all its parts, and resembles very closely the eggs of oviparous animals. For the development of this it is necessary that a principle of vitality shall be imparted to it by the male parent, which is also the case with the eggs of oviparous animals, and also with many plants. (For further description see Vol. 2.) In the egg thus vitalized a process of growth commences,

its elements being formed into minute cells, which arrange themselves to form a membrane, and this again separates into different parts, for the production of bone, nervous system, heart, arteries and veins, alimentary canal, skin, etc. The egg contains all the elements of growth within itself, and in the human being, when these are exhausted it has formed an attachment to the mother, and derives a further supply of nutritious material from her blood. We may take the egg of the common fowl as an example of this process. If vivified by the male bird, and placed in a situation where it will receive a continuous supply of heat, we will find in a short time its character is entirely changed. A germinal membrane is formed, the heart and blood-vessels are developed, an intestinal canal, lungs, bones, nervous system, and lastly, skin, feathers, etc., so that in the course of twenty-one days a chick, perfect in all its parts, has been developed from the contents of the egg. A casual observer would have seen nothing in it resembling bone, or feathers, or even flesh; but they were all there in a fluid form. Neither would he suppose that in our food were the elements of blood, bone, nerve-tissue, muscle, and even the hair and nails.

In the human egg, the process of development goes on in the material contained within it up to about the fifth week, when the heart and vessels having been developed, it forms an attachment to the mother, and henceforth receives its supply of material from her blood. It contains all the elements of the body, in such form as to be readily appropriated by the child, which, when born, is complete in all its parts.

FOOD.

Food may be described as anything that can be appropriated by the body for the growth and repair of its various parts, or for the production of heat. It may be properly divided into two kinds, one *nutritive* or *plastic* which contains nitrogen, and can be converted into blood, and

thence into the tissues of the body; the other contains no nitrogen, and is simply combustible material. Kirkes remarks, "That an easier division of foods than this, according to their destination, is derived from their origins; for all consist either of animal or vegetable substances. No substance can offer nutriment, even though it contain all the elements of organic bodies, unless it have all the natural peculiarities of organic composition, and contain incorporated with its other elements, some of those derived from the mineral kingdom, which, as *incidental elements*, are found in the organized tissues: such as sulphur, iron, lime, magnesia, etc.

"Man is supported as well by food constituted wholly of animal substances, as by that which is formed entirely of vegetable matters; and the structure of his teeth, as well as experience, seems to point out that he is destined for a mixed kind of aliment. In the case of carnivorous animals, the food upon which they exist, consisting as it does of the flesh and blood of other animals, not only contains all the elements of which their own blood and tissues are composed, but contains them combined, probably in the same forms. Therefore, little more may seem requisite, in the preparation of this kind of food for the nutrition of the body, than that it should be dissolved and conveyed into the blood in a condition capable of being reorganized. But in the case of herbivorous animals, which feed exclusively upon vegetable substances, it might seem as if there would be greater difficulty of procuring food capable of assimilation with their blood and tissues. But the chief ordinary articles of vegetable food contain substances identical, in composition, with the albumen, fibrin, and casein, which constitute the principal nutritive materials in animal food. Albumen is abundant in the juices and seeds of nearly all vegetables; the gluten which exists, especially in corn and other seeds of grasses, as well as in their juices, is identical in composition with fibrin, and is commonly named vegetable fibrin; and the substance named legumin,

which is obtained especially from peas, beans, and other seeds of leguminous plants, and from the potato, is identical with the casein of milk. All these vegetable substances are, equally with the corresponding animal principles, and in the same manner, capable of conversion into blood and tissues."

It is difficult to determine the amount of food required by a man in ordinary pursuits, as it varies greatly as regards the kind and quality, and, to a considerable extent, the habit of the individual. It is probable that a healthy man, taking exercise in the open air, will require something near the following amount:

Meat,	-	-	-	16 ounces.
Bread,	-	-	-	19 "
Butter or fat,	-	-	-	3½ "
Water,	-	-	-	23 fluid ounces, or 3½ pints.

The following table, compiled from Carpenter's Physiology, shows the relative value of different articles of food, human milk being the standard of comparison, and rated 100.

VEGETABLE.

Rice,	-	-	-	81	Oats,	-	-	-	138
Potatoes,	-	-	-	84	White bread,	-	-	-	142
Turnips,	-	-	-	106	Brown bread,	-	-	-	166
Rye,	-	-	-	106	Peas,	-	-	-	239
Corn,	-	-	-	100—125	Lentils,	-	-	-	276
Barley,	-	-	-	125	Beans,	-	-	-	320

ANIMAL.

Human milk,	-	-	-	100	Fish, from	776 to 954
Cow's milk,	-	-	-	237	Pigeon, boiled,	- 827
Oyster,	-	-	-	305	Lamb,	- 833
Eggs,	-	-	-	305	Mutton, boiled,	- 852
Cheese,	-	-	-	331—347	Veal,	" - 911
Pork ham, boiled,	-	-	-	807	Beef,	" - 931

Such a table must not be supposed to indicate the fitness of different articles for food, though correct as

regards the proportionate amount of material capable of forming tissue. For an article that contains a small portion, may be so much easier of digestion, that it would be preferable. Some of those articles of food, also, which contain a small proportion of tissue-making material, are rich in material for the production of heat.

Carpenter remarks, "that the most economical diet will be that in which there is the most perfect apportionment of each class of constituents to the wants of the system; and these will vary with the amount of muscular exertion put forth, and the lowering of the external temperature. Thus, for a man of ordinary habits, and living under a medium temperature, a diet composed of animal flesh alone is the least economical that can be conceived; for, since the greatest demand for food in his system is created by the necessity for a supply of carbon and hydrogen to support his respiration, this want may be most advantageously fulfilled by the employment of a certain quantity of non-azotized food, in which these ingredients predominate. Thus it has been calculated, that, since fifteen pounds of flesh contain no more carbon than four pounds of starch, a savage with one carcass and an equal weight of starch, could support life for the same length of time, during which another, restricted to animal food, would require five such carcasses, in order to procure the carbon necessary for respiration. Hence we see the immense advantage, as to economy of food, which a fixed agricultural population possesses over those wandering tribes of hunters, which still people a large part of the old and new continents."

HUNGER.

In every living organism there is an incessant and reciprocal activity of *waste* and *repair*. The living fabric in the very actions which constitute its life, is momentarily yielding up its particles to destruction, like the coal which is burned in the furnace; so much coal to so much heat,

so much waste of tissue to so much vital activity. You can not wink your eye, move your finger, or think a thought, but some minute particle of your substance must be sacrificed in doing so. Unless the coal which is burning be from time to time replaced, the fire soon smoulders and finally goes out; unless the substance of your body, which is wasting, be from time to time furnished with fresh food, life flickers, and at length becomes extinct. Hunger is the instinct which teaches us to replenish the empty furnace. But although the want of food, necessary to repair the waste of life, is the primary cause of hunger, it does not, as is often erroneously stated, in itself constitute hunger. The absence of necessary food causes the sensation, but it is not itself the sensation. Food may be absent without any sensation, such as we express by the word hunger, being felt; as in the case of insane people, who frequently subject themselves to prolonged abstinence from food, without any hungry cravings; and, in a lesser degree, it is familiar to us all how any violent emotion of grief or joy will completely destroy, not only the sense of hunger, but our possibility of even swallowing the food which an hour before was cravingly desired. Further, it is known that the feeling of hunger may be allayed by opium, tobacco, or even by inorganic substances introduced into the stomach, although none of these can supply the deficiency of food. Want of food is, therefore, the primary, but not the proximate, cause of hunger. I am using the word hunger in its proper sense here, as indicating that specific sensation which impels us to eat; when the subject has been more fully unfolded, the reader will see how far this popular sense of the word is applicable to all the phenomena.

We can now understand why hunger should recur periodically, and with a frequency in proportion to the demands of nutrition. Young animals demand food more frequently than the adult; birds and mammalia more frequently than reptiles and fishes. A lethargic boa-con-

strietor will only feed about once a month; a lively rabbit twenty times a day. Temperance has also its influence on the frequency of the recurrence: cold excites the appetite of warm-blooded animals, but diminishes that of the cold-blooded, the majority of which cease to take any food at the temperature of freezing. Those warm-blooded animals which present the curious phenomenon of "winter sleep," resemble the cold-blooded animals in this respect; during hybernation they need no food, because almost all the vital actions are suspended. It is found that, at this temperature of freezing, even digestion is suspended. Hunter fed lizards at the commencement of winter, and from time to time opened them, without perceiving any indications of digestion having gone on; and when spring returned, those lizards which were still living, vomited the food which they had retained undigested in their stomachs during the whole winter.*

Beside the usual condition of recurring appetite, there are some unusual conditions, depending on peculiarities in the individual, or on certain states of the organism. Thus, during convalescence after some maladies, especially fevers, the appetite is almost incessant; and Admiral Byron relates that, after suffering from a month's starvation during a shipwreck, he and his companion, when on shore, were not content with gorging themselves while at table, but filled their pockets, that they might eat during the intervals of meals. In certain diseases there is a craving for food which no supplies allay; but of this we need not speak here.

The animal body is often compared with a steam-engine, of which the *food* is the *fuel* in the furnace, furnishing the motor power. As an illustration, this may be acceptable enough, but, like many other illustrations, it is often accepted as if it were a real analogy, a true expression of the facts. As an analogy, its failure is con-

* Hunter—Observations on Certain Parts of Animal Economy.

spicuous. No engine burns its *own substance* as fuel: its motor power is all derived from the coke which is burning in the furnace, and is in direct constant proportion to the amount of coke consumed; when the coke is exhausted, the engine stops. But every organism consumes its own body: it does not burn food, but tissue. The fervid wheels of life were made out of food, and in their action motor power is evolved. The difference between the organism and the mechanism is this: the production of heat in the organism is not the *cause* of its activity, but the *result* of it; whereas, in the mechanism, the activity originates in and is sustained by the heat. Remove the coals which generate the steam, and you immediately arrest the action of the mechanism; but long after all the food has disappeared, and become transformed into the solids and liquids of the living fabric, the organism continues to manifest all the powers which it manifested before. There is, of course, a limit to this continuance, inasmuch as vital activity is dependent on the destruction of tissue. The man who takes no food, lives like a spendthrift on his capital, and can not survive his capital. He is observed to get thin, pale, and feeble, because he is spending without replenishing his coffers; he is gradually *impoverishing* himself because life is waste; for life moves along the stepping-stones of change, and change is death.

ORGANS OF DIGESTION.

The process by which food is prepared for the uses of the body, is a most interesting and important study, though much simpler than would be supposed. Our food contains all the elements of the tissues, but in such form that they can not appropriate it. Therefore the necessity of a series of organs for its minute comminution and change from a solid or semi-solid form to a fluid.

The mouth, the first part of this apparatus, is furnished with teeth, firmly inserted in the upper and lower jaw,

the latter being moved by strong muscles; the arrangement of the muscles of the lips, cheeks and tongue being such as to keep the food between the teeth during mastication. As the principal articles of food are more easily comminuted by the addition of fluid, certain glandular organs are associated with the mouth to furnish it. These are on each side, one between the lower jaw and the ear, one beneath the angle of this bone, and one beneath the tongue.

Food taken into the mouth is carried under the teeth, and the process of trituration begun; this excites the salivary glands, and saliva is poured out in quantity sufficient to form the food into a semi-fluid mass. When thus divided, it is carried on to the tongue, which being drawn backward, carries the food into the throat, from whence it passes through the œsophagus, or gullet, to the stomach. This process is usually regarded as a very unimportant one, and the demands of the system for a proper preparation of the food entirely overlooked. As a nation, we are guilty of bolting our food without mastication, and of wasting the saliva by chewing and smoking tobacco; hence we are a nation of dyspeptics. Many a man and woman suffers from indigestion, and all its consequences—broken down health—who may attribute all their sufferings to not taking sufficient time to masticate their food; and others suffer the same consequences by wasting the saliva in the use of tobacco. Numerous cases in my experience have been relieved by such change of habits as would permit the normal performance of the functions of mastication and insalivation.

The saliva consists principally of water, holding in solution a small amount of alkaline matter, and a peculiar principle termed ptyaline, which commences a process of change in the food, changing its starch into sugar. The amount of saliva usually secreted in twenty-four hours, is from ten to twenty ounces.

THE STOMACH.—The stomach is a large, hollow sac, situated immediately below the septum dividing the chest

FIG. 2.



DIGESTIVE APPARATUS.

1, Mouth. 2, Œsophagus. 3, Stomach. 4, Large Intestine. 5, Small Intestine. 6, Rectum. 7, Gall Bladder and situation of the Liver.

from the abdomen, its largest portion being in the left side and extending across the body to the right. Its walls are about an eighth of an inch in thickness, composed of three layers, a serous, muscular and mucous, the last containing numerous minute glands which secrete the gastric fluid. Its muscular coat is strong, and during the process of digestion keeps the mass of food in constant motion.

Food taken into the stomach during a meal, usually contains a large amount of fluid, which must be removed by the veins before digestion commences. Hence, in some cases, indigestion is remedied by abstaining from fluids during a meal, so that the process of digestion will commence immediately. When the fluids are thus absorbed, the gastric juice is poured out, and comes in contact with the surface of the mass, which being kept in constant motion by the muscular coat of the stomach, is rapidly dissolved. The liquid thus formed, called chyme, is a milky fluid, of an acid reaction, and is passed through the contracted lower extremity of the stomach into the first part of the small intestine. In addition to the water, a small portion of the albumen of the food is absorbed by the veins of the stomach, but the largest proportion has to undergo still further change to fit it for the uses of the economy.

From two to six hours is required for the digestion of a meal in the stomach, depending partly on the character of the food, and partly on the condition of the stomach. Thus we find cases in which the process of digestion is so slow that a considerable part of the food putrefies, and is thus not only useless, but in many cases absolutely injurious. When a person is very much exhausted, food can not be digested rapidly; hence, it will almost invariably prove injurious, unless taken in small quantities. Food should be taken sparingly when a person is feeling badly, or when they have symptoms of approaching disease. For the same reasons, I have known cases in which food,

taken into the stomach before an attack of sickness, remained undigested for days, being a source of continued irritation.

An individual by the name of Alexis St. Martin, from a wound, had an opening into the stomach from the surface, permitting an examination of the process of digestion. Dr. Beaumont, who performed numerous experiments with him, gave the following as the time required for the digestion of different kinds of food :

KIND OF FOOD.	HOURS.	MINUTES.
Pigs' feet, - - - -	1	00
Tripe, - - - -	1	00
Trout (broiled), - - -	1	30
Venison steak, - - -	1	35
Milk, - - - -	2	00
Roasted turkey, - - -	2	30
Roasted beef, - - -	3	00
Roasted mutton, - - -	3	15
Veal (broiled), - - -	4	00
Salt beef (boiled), - -	4	15
Roasted pork, - - -	5	15

The gastric juice which accomplishes the transformation of food into chyme is secreted by numerous minute glands, situated in the mucous membrane of the stomach. It is supposed to amount, in the well developed and healthy man, to between sixty and eighty ounces, being poured out only when food or other material is taken into the stomach. Dr. Beaumont found that the introduction of any material, as the bulb of a thermometer, would excite the secretion, so that he was enabled to collect as much as an ounce at a time. He describes it as a "clear, transparent fluid, inodorous, a little saltish, and very perceptibly acid. Its taste is similar to that of mucilaginous water, slightly acidulated with muriatic acid. It is readily diffusible in water, wine, or spirits; slightly effervesces with alkalies, and is an effectual solvent of alimentary material. It pos-

sesses the property of coagulating albumen in an eminent degree; is powerfully antiseptic, checking the putrefaction of meat, and effectually restorative of action when applied to old fetid sores, and foul, ulcerating surfaces."

At times the gastric juice is secreted in large quantity, and possesses an undue degree of acidity, and brought up into the mouth by eructation, it is extremely acrid. This acidity is the cause of heartburn. In addition to the gastric juice, the stomach secretes mucus for its protection, like other mucous membranes; at times this is secreted in undue quantity, and impairs the appetite and digestion, causes the tongue to be heavily coated, and a bad taste in the mouth. It is this mucus, removed by an emetic, which the Thompsonians call canker.

SMALL INTESTINES.—The chyme, formed in the stomach, passes into the small intestines, and being exposed to the action of the bile, pancreatic fluid, and intestinal secretions, is changed into chyle, a fluid of higher organization, which is absorbed by the veins and lacteals, and thus gains entrance into the blood. It is supposed by a majority, both in and out of the profession, that the process of digestion is principally accomplished in the stomach. This, however, is not the fact, as recent experiments have proven, the most important part of the process occurring in the intestines.

The case of Alexis St. Martin, who, from a wound, had a large opening from the stomach through the abdominal walls, and the extended experiments of Dr. Beaumont, which accomplished so much to elucidate the physiology of digestion, has been named. As that was the first instance of the kind on record, it might be reasonably supposed that centuries would elapse before another opportunity of like character would occur. Fully as remarkable a one, however, has been observed in Germany, and a series of very important observations made by Dr. Busch, of the University of Bonn.

A woman, thirty-one years of age, from injuries, had

fistulous openings, completely separating the stomach, duodenum, and a short fragment of the jejunum, from the intestine below, the upper portion of the jejunum being torn in two. Not the least communication existed between the two portions, and the contents of the stomach and duodenum, with the gastric, pancreatic and biliary secretions were discharged without admixture with the secretions from the intestine below.

When admitted to the hospital the first effects of the injury had passed off, but the emaciation was remarkable, so that, though considerable improvement had taken place, she only weighed 68 pounds 2 ounces eight weeks after admission. She devoured incredible quantities of food, and for a length of time, while still eating, the food first taken would make its appearance in the superior fistula, and on being questioned, she would state that, though feeling better, her strong desire for food was not satisfied. In fact, though her stomach was filled, she felt an irresistible desire for aliments. The physiology of hunger was conclusively shown in this case to be composed of two factors—the one, the emptiness of the stomach and first passages, which was temporarily relived by eating; the other, more permanent, caused by the excess of waste over supply.

The main object, at first, was to arrest the marasmus, by furnishing to the system a supply of nutritious material, it being evident that no matter how much was taken into the stomach the exhaustion still increased. It was attempted to lead the contents of the upper portion into the lower by artificial means, but this failing, after repeated trials, another course of feeding was adopted, with marked success. “At first protein substances were injected into the lower opening, alternately with amylaceous, and subsequently eggs and meats were stuffed in by the finger. The result was most surprising, and admitted no comparison with the previously adopted feeding through the mouth. Although there was not commensurate increase of the

volume of the patient, yet the muscles manifested more tone, the features lost their death-like expression, the eyes became bright, the voice returned, and the patient could sit up in the erect posture."

We have here indisputable evidence that the small and large intestines do possess the power of digestion in a very marked degree—far exceeding the stomach and duodenum, which, with the associate glands, have hitherto received the credit. The enteric juice, contrary to the experiments of Frerichs, was found to be secreted in small quantity. During six weeks prior to her entering the hospital, the patient had but one alvine evacuation, of the size of a chestnut, consisting, probably, only of mucus and epithelial scales. Subsequently, (food being introduced into the lower fistula) she had, every twenty-four hours, a copious one of ordinary consistence, though of a grayish white color, on account of total absence of bile. Most conspicuous was their foetid odor. Digestion seemed otherwise to be perfect, and the feces retained no traces of the nutrients taken. These facts, with the steady improvement of the patient, would seem to demonstrate the dissolving properties of enteric juice upon protein bodies.

As before remarked, the chyle is absorbed by the veins, and by a series of small vessels termed *lacteals*, which empty into a larger vessel, the *thoracic duct*, and it again into a vein on the left side of the neck. In addition to its action in digestion, we find that the small intestine is an excretory organ, its glands removing foreign material from the blood, and passing them into the tube to be passed from it as feces at stool.

LARGE INTESTINE.—Whilst the small intestine is about 25 feet in length, the large intestine is only about 5 feet; the small intestine is very loosely attached and movable; the large intestine, for a considerable part of its course, is firmly attached. The large intestine commences low down in the right side of the abdomen, passes upward to near the liver, then across to the left, then down on the

left side to the lower part of abdomen, then to the median line where it becomes the rectum, terminating at the anus. It receives the remains of the food and the intestinal excretions, which are formed into feces, and discharged at regular periods.

THE LIVER.—The liver is the largest organ in the body, measuring about twelve inches from right to left, from four to five from before backwards, and weighing about four pounds. It is situate in the upper part of the abdomen immediately behind the lower ribs, and in contact with the diaphragm. The blood from which its secretion is formed is venous, and derived from the veins of the stomach and entire intestinal canal, which, uniting, form one large vein, the portal vein. This, passing into the liver, divides and sub-divides into minute or capillary vessels, which pass to the lobules of the liver, which remove the elements of bile. The blood is then received into the hepatic veins, which convey it to the large ascending vein—*vena cava*. Unlike all other secreting organs, the secretion of the liver is formed from venous blood, and the arrangement of the vessels is such that should this organ become torpid, the flow of blood from the intestinal canal will be obstructed. It is from this reason that torpor of the liver produces *piles*, which are simply enlargements of the inferior intestinal veins, and sometimes occasions diarrhoea, though more frequently constipation.

The bile is a yellowish or greenish, viscid fluid, with an intensely bitter taste, and peculiar nauseous smell. Its secretion is supposed to be constant, the *gall-bladder* situated on the under surface of the liver, receiving the bile and pouring it into the intestine when it is required. The purposes served by the secretion of bile are of two kinds, the removal of excrementitious material from the blood, and to aid in the process of digestion. The first purpose is quite important, as when the elements of bile are not properly removed from the blood, disease always occurs, as in jaundice. The second has not as yet been fully investigated,

but as Paget remarks, "though the chief purpose of the secretion of bile may appear to be the purification of the blood by excretion, yet there is reason to believe that while it is in the intestines, it serves then in the process of digestion. In nearly all animals the bile is discharged, not through an excretory duct communicating with the general surface, or with a single reservoir, as most excretions are, but is made to pass into the intestinal canal, so as to be mingled with the chyme directly after it leaves the stomach; an arrangement, the constancy of which clearly indicates that the bile has some important relations to the food with which it is thus mixed." It undoubtedly assists in the process of converting chyme into chyle, and rendering it capable of being absorbed by the lacteals. It is also markedly antiseptic, and arrests the putrefactive process in the intestine, and also, as supposed, furnishes a material to the blood, which stands in the same relation to it that hops do to beer. It is one of the principal agents in the digestion of fatty matter, and in the production of fat from the starchy portions of the food, and also changes the same material into grape sugar.

THE PANCREAS.—The pancreas is a small glandular organ about six inches in length, but not more than from one to one and a half in width, and about one in thickness. Its duct opens into the same part of the intestine as the duct of the liver. The secretion closely resembles the saliva, being colorless, transparent, and slightly viscid. It aids in the process of digestion, but in what manner has not been certainly ascertained.

THE SPLEEN.—The spleen is an oblong, flattened organ of a bluish-red color, situated in the upper and left side of the abdomen. It receives a large supply of blood, and its vein, which is a branch of the portal, is much larger than the artery. It is not a gland, and furnishes no secretion, but is supposed by most writers to serve as a reservoir for the portal blood when it can not pass freely through the liver. It has also been noticed that the red globules of

the blood were more broken down in the splenic vein than in any other vessel, and contained a larger number of white globules. Thus it is considered by some, an organ to break down the worn out blood; by others, a blood-making organ. Occasionally it is seen very much enlarged, as in ague-cake in severe and protracted agues.

THE BLOOD.

“The blood is the general circulating fluid of the animal body; the source of all nutriment and growth, and the general material from which all the secretions, however much they may differ in properties, are derived. It also serves the scarcely less important office of removing and carrying off from the body principles which are hurtful or no longer required.”

When drawn from an artery it is a bright scarlet-red fluid; when from a vein, it is purplish-red; heavy, and of a viscid consistence. If allowed to stand for some minutes, it coagulates, becoming solid like jelly, but after awhile a considerable amount of fluid separates, and is called serum, the clot being more firm. Blood has a peculiar, slightly salty taste, and to many, a disagreeable odor.

The average proportion of the principal constituents of the blood in 1,000 parts are:

Water,	-	-	-	-	-	-	784
Red corpuscles,	-	-	-	-	-	-	131
Albumen,	-	-	-	-	-	-	70
Saline matters	-	-	-	-	-	-	6.03
Extractive, fatty, and other matters,	-	-	-	-	-	-	6.77
Fibrine,	-	-	-	-	-	-	2.2

The albumen, saline, extractive matters, and fibrine, are held in solution in the water, and form the *liquor sanguinis* or serum, in which are suspended the red globules.

The *albumen* is derived from the albuminous elements of our food, which undergoes but slight change after digestion, further than being combined with a minute portion

of soda. It furnishes the nutrient material for all the soft tissues of the body except fat, and is constantly being drawn upon as it circulates through the vessels, and as constantly replenished from food.

The *saline matters* comprise soda, potash, lime, magnesia, phosphorus, sulphur and iron. They are very important elements of the solids and fluids of the body—soda and potash of the blood itself, lime of the bones, phosphorus and sulphur of the nervous system and bones, and iron of the red globules, and the coloring material of the eye, hair, etc. If either are deficient, though they exist in such small quantity, disease is the result. Thus the difference of half an ounce of iron in the body, is the difference between perfect health and that extreme condition of debility known as *anemia*, and the absence of a few grains of phosphorus from the brain, will result in enfeebled nervous action or death.

The *extractive matters* we may suppose to be the detritus of the tissues, which, being absorbed by the blood-vessels, is being carried to the excretory organs for removal from the system. Fatty matters exist in the blood in small proportion, and are constantly removed either by combustion or by being stored away as adipose tissue.

Fibrine seems to be the element most nearly related to the tissues of the body; as, in blood drawn, it immediately arranges itself in beautiful fine fibers interlacing in all directions. It is this element that causes the blood to coagulate, and it may be removed from freshly-drawn blood by whipping it with a bunch of small switches or wires, when the blood loses its property of coagulating. In former years much attention was paid to this element, as a symptom of disease, and as an indication for bleeding. In all inflammatory and febrile diseases, it was held to be in excess, the evidence of which was the firm clot, cupped, and with a whitish, *buffy* coat. The presence of this, it was considered, always indicated blood-letting. The experiments of Magendie, one of the ablest physiolo-

gists, proved that in many cases the fibrine was not increased in these diseases, but the increase was dependent upon the abstraction of blood, and that each successive bleeding, instead of lessening, but increased the quantity. It was further shown that in confirmed anemia, when the powers of life were nearly exhausted, the fibrine was in very large quantity; so that if this was an indication for blood-letting, then it should be most certainly adopted in this last condition. The absurdity of blood-letting, as a means of treatment, is now so generally admitted, that it seems useless to advance arguments against it. With reference to the uses of fibrine, there is much dispute, some contending that it is albumen prepared for the formation of tissue, while others contend that it is the elements of the worn out tissues.

The *red globules*, as we have already seen, form more than half of the solids of the blood. They are circular, flattened discs, varying in diameter from $\frac{1}{3000}$ to $\frac{1}{4000}$ of an inch in diameter. Examined singly, they appear colorless, but when aggregated, they give the red color to the blood. They consist of a cell wall, and an internal substance called *hematine*, containing iron, which is, undoubtedly, the coloring material. These bodies are highly organized, requiring a considerable time for their development, as we observe in disease, in cases of hemorrhage, and from blood-letting. They are the normal stimulus of all parts of the body; as when deficient, we find imperfect digestion, nutrition and innervation. In addition, they are the principal carriers of oxygen from the lungs to all parts of the system, and of carbonic acid gas back to the lungs. In this view they resemble small vessels freighted with life from the lungs to the tissues, and carry a return freight of death from the tissues to the lungs for its removal. If this carrying power was destroyed for five minutes, death would be inevitable and it has been supposed by some that some forms of sudden death, as from lightning, result from this. The white

corpuscles are much less numerous than the red, and are supposed by some writers to be embryo red globules.

The life of the blood is manifested in its coagulation, and the subsequent more perfect organization which it may attain when it coagulates among healthy living tissues. But, in a higher degree, its life is shown in its development and self-maintenance, in its liability to disease and death, and in the purpose and relation which connect it with other parts.

The formative power by which the blood maintains itself, is, perhaps, inherent in its whole substance, as we observe that the glands through which the chyle passes, is abundantly supplied with arterial blood. There are no blood-making organs, but the materials of digestion are formed into blood by contact with the blood itself. It possesses a large vitality, sufficient for its formation and preservation, and for the various purposes of the body. Though this is the case, no other part of the organism, as Liebig well remarks, can be compared to the blood, in respect to the feeble resistance it offers to external influences. It is not an organ which is formed, but an organ in the act of formation; indeed, it is the sum of all the organs which are being formed. The chemical force and the vital principle hold each other in such perfect equilibrium that every disturbance, however trifling, or from whatever cause it may proceed, effects a change in the blood. In fact, it possesses so little permanence, that it can not be removed from the body without immediately suffering a change, and can not come in contact with any organ in the body without yielding to its attraction.

HEART AND BLOOD VESSELS.

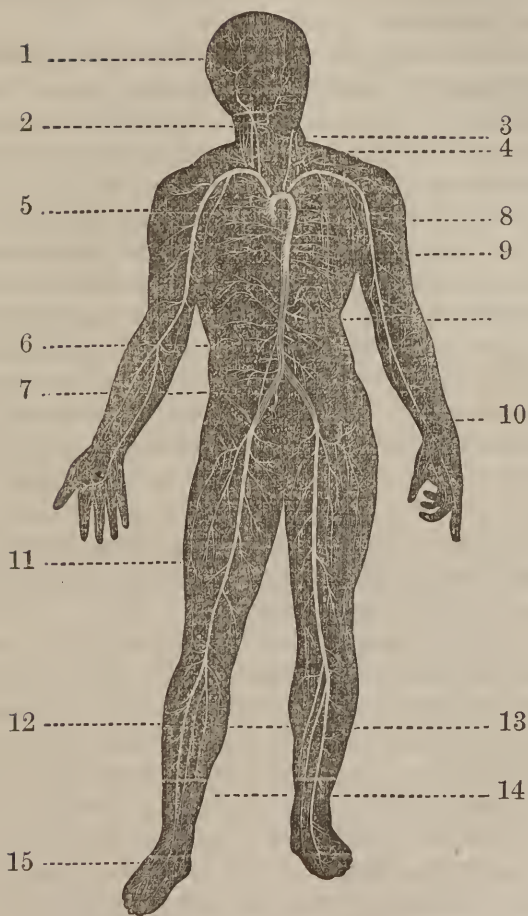
The heart is situated near the center of the chest between the lungs, though to the left of the median line; the junction of the fifth rib with the breast-bone, marks its exact position. A very common error, is to suppose it situated im-

mediately below the breast-bone, or to the left under the false ribs, and attribute symptoms to it which arise from derangement of the stomach.

The heart is a hollow muscle, divided into four compartments, two on the right and two on the left side. The compartments are called *auricles* and *ventricles*, the first being situated above and having thin walls, the second below, and having thick walls. The circulation of the blood depends upon the contraction of the heart, which acts as a force pump to throw the blood to all parts of the system. If we examine it carefully we will see that all the venous blood in the body is gathered into two large veins, the ascending and descending *vena cava*. These empty into the right auricle, which, contracting, forces the blood into the right ventricle, and its contraction throws it into the pulmonary artery which conveys it to all parts of the lungs. A very important change now takes place in the blood, it gives off its carbonic acid gas, and receives a supply of oxygen, which changes its color from the purplish-red of venous blood, to the vivid scarlet-red of arterial blood. The blood is received from the lungs by four veins called pulmonary veins, which convey it to the left auricle; this contracting forces it into the left ventricle, which throws the blood through the aorta into every part of the body. The different openings in the heart are closed by strong membranous valves which prevent the backward passage of the blood when the heart contracts.

The blood propelled from the heart is distributed to the body by vessels called *arteries*, from the belief of the ancients that they contained air, being always found empty. These vessels are cylindrical tubes composed of three coats—an external dense fibrous, a middle elastic, and an internal lining membrane. The veins possess the same structure, though their walls are much thinner, and they are supplied with valves to prevent a reflux of blood. Owing to the elasticity of the arteries, their walls yield at

Fig. 3.



ARTERIAL SYSTEM.

1, Temporal Artery. 2, Carotid Artery. 3, Vertebral Artery. 4, Subclavian Artery. 5, Aorta. 6, Abdominal Aorta. 7, Iliac Artery. 8, Axillary Artery. 9, Brachial Artery. 10, Radial Artery. 11, Femoral Artery. 12, Anterior Tibial Artery. 13, Posterior Tibial Artery. 14, Peroneal Artery. 15, Dorsalis Pedis Artery.

each impulse of the heart, and contract when it has passed, hence the pulsation of all arteries are synchronous with the beats of the heart.

We wish to study the situation of the principal arteries with reference to injuries, that we may know when to apply pressure to arrest a flow of blood. The large artery arising from the heart is called the *ascending aorta*, passing upward, and to the right about three and a half inches; thence curving to the left and backward, the *arch of the aorta*, then downward on the anterior surface of the spine to a point just posterior to the *umbilicus* or naval. In this course it sends off, first, two large vessels which go to the right side of the head and right arm, and next two others, which go to the left side of the head and left arm. By examining Fig. 3, the course of these arteries and their distribution may be readily seen. Passing downward, the aorta gives branches to the walls of the chest, next to the diaphragm, then to the stomach, liver, spleen, small intestines, kidneys and large intestines, finally dividing into two large trunks which supply the organs in the pelvis, and pass down the lower extremity.

The system of arteries may be compared in its arrangement to the trunk and branches of a tree, except that very frequent communications exist between these branches, so that by a continual sub-division and inosculation, their distribution comes more and more to resemble the capillary net work in which they terminate. (See Fig. 3.) "Although the *diameters* of the branches, at each sub-division, together, exceed that of the trunk, yet there is but little difference in their respective *areas*; what difference does exist, however, is usually in favor of the branches."

The minute vessels in which the arteries terminate, are called *capillaries*. They vary considerably in size, their average diameter being about $\frac{1}{3000}$ of an inch, and the spaces between them does not exceed, and in many situations is much less than the size of the vessel. So closely

are they situated that the finest pointed needle can not be introduced into any tissue without wounding them and causing a flow of blood. Looking at it in this light, almost one-half of our bodies are composed of blood-vessels. It is from these minute vessels that the tissues derive their nutrient matters, and when a vessel carrying red globules would interfere with the function of a part, the vessels are so minute as only to carry the colorless portions of the blood, as is the case in the transparent structures of the eye.

The *veins* receive the blood from the capillaries, and convey it to the heart. As before remarked, their walls are thinner, and their course more tortuous, and a retrograde movement of the blood is prevented by the presence of valves. The heart furnishes the principal motive power to the blood in the veins, though this is doubtless increased by the action of the muscles.

NUTRITION.

Very closely associated with digestion, the structure, composition and circulation of the blood, is the formative process by which the various parts of the body renew their substance. Among the most familiar examples of nutrition and growth, may be cited the nails and hair. I take these as examples, because they are visible and readily appreciated. The nails and hair are cut frequently, and are observed to grow, and become as long as ever. This growth, in the one case, takes place by the continued formation of nail at its root or *matrix*, and in the other in the hair bulbs. If, now, we should examine these parts with a magnifying glass, we would find that minute cells are constantly being formed, and that as they grow they abstract from the blood the material for nails and hair. As this formation continues, those which were developed yesterday, are pushed further from the blood-vessels that supply them, and, in a few days more, have become elongated, and lose their fluid and form a part of the nail or hair.

So it is in all parts of the body. Each structure and tissue possessing vitality sufficient to live, possesses the power of producing formative cells. If a part loses this property, it soon becomes worn out, or loses its function, as we witness in old age. These cells are microscopic, from the $\frac{1}{300}$ to the $\frac{1}{15000}$ part of an inch in diameter. Its wall is apparently structureless, and it is filled with *protein compounds*, in the case of the tissues; bone in bone cells, and fat, in the case of adipose tissues. We have heretofore noticed, when describing the formation of the human being, that the egg from which the process of development commenced, was a cell, and that the germinal membrane from which the body was developed, was formed by the growth of cells in the egg.

Each tissue and part has its own peculiar cells, capable of abstracting material from the blood for the nutrition of that part. The tissue is the parent of the cells, and it is a law in nature that offspring possesses all the general characteristics of parents. Thus fibrous tissue produces fibrous cells, muscular tissue muscular cells, bone tissue bone cells, etc. In the young this process of cell growth is very rapid, so as to increase the size of the part. In middle age it is just sufficient to maintain the part in a normal condition, while in old age it gradually ceases, and the part finally dies.

Associated with the process of nutrition, is the wearing out and constant removal of the tissues. The material of which our bodies are formed is not very substantial, and, at farthest, can last but a few years; hence the necessity for its replacement. Certain portions are being worn out every day, and have to be removed to give place to the new. It becomes soluble, is absorbed by the blood-vessels, and removed from the blood by the excretory organs. If this process of breaking down be interfered with, the parts become old, and in the same ratio lose their functions. "*The duration of life in each particle*, is, however, liable to be modified; especially by the exercise of the

function of the part. The less a part is exercised the longer do its component particles appear to live; the more active its functions are, the less prolonged is the existence of its individual particles."

The conditions necessary to nutrition are: "1st. A right state and composition of the blood, from which the materials for nutrition are derived. 2d. A regular and not far distant supply of such blood. 3d. A certain influence of the nervous system. 4th. A natural state of the part to be nourished."

SECRETION.

Secretion is the *separation* of some material from the blood, either for some use in the body, as the secretion of saliva, bile, etc., or for removal, as the secretion from the skin, kidneys and bowels. The first is termed a *secrementitious*, the last an *excrementitious* secretion. For the production of a secretion a special apparatus is required, which is always alike in its minute structure, however it may differ in its general detail. The simplest form of a secretory organ consists of a minute simple tube, closed at one extremity, and receiving a very free supply of blood. This tube possesses the power of forming cells with great rapidity, and these of abstracting from the blood the material for the secretion, whether it be gastric juice, bile, sweat, etc. When it has filled itself from the blood, it has served its purpose, is ruptured, and discharges its contents into the tube. A small gland consists of but one such tube or duct, as is the case with the gastric follicles and others. A large gland is simply a combination of such tubes, no matter what its shape or size.

Normal secretion, both secrementitious and excrementitious, is necessary to health; hence it will be profitable to notice the *circumstances influencing secretion*, which I will quote from Kirkes:

"The influence of external conditions on the functions of glands is manifested chiefly in alterations of the quantity of secretion, and among the principal of these condi-

tions are variations in the quantity of blood, in the quantity of the peculiar materials for any secretion it may contain, and in the conditions of the nerves of the glands.

“In general, an increase in the quantity of blood traversing a gland, coincides with an augmentation of its secretion. Thus, the mucous membrane of the stomach becomes florid when, on the introduction of food, its glands begin to secrete. The mammary gland becomes much more vascular during lactation, and it appears that all circumstances which give rise to an increase in the quantity of material secreted by an organ, produce, coincidentally, an increased supply of blood. In most cases, the increased supply of blood rather follows than precedes the increase of secretion.

“Glands also secrete with increased activity when the blood contains more than usual of the materials they are designed to separate. Thus, when an excess of urea is in the blood, whether from excessive exercise, or from destruction of one kidney, a healthy kidney will excrete more than it did before. It will, at the same time, grow larger: an interesting fact, as proving both the identity of secretion and nutrition in glands, and that the presence of certain materials in the blood may lead to the formation of structures in which they may be incorporated.

“The production of secretions often appears, also, to be influenced by the condition of the nervous system. It is not possible to say, with certainty, whether the secretion of a gland would be arrested by the division or destruction of all the nerves distributed to it, for the branches of these nerves are largely spread over the blood-vessels, so that their destruction can not be effected without serious injury to the vessels. The most distinct instances of nervous influence are shown in cases of secretion of the earthy phosphates, by the kidneys, after injury of the spinal cord. Whatever, within certain limits, excites the nerves of a gland, is followed by an increase in the quantity of its secretion.”

THE SKIN AND ITS SECRETION.

The skin is not only the investing membrane of the whole body, but it is also one of the most important *excretory* organs; in this respect being essential to life. It is composed of two parts—an internal layer, thick and strong, formed of fibrous and elastic tissue, called the *derma*, or true skin, and an external layer, composed of dessicated cells, which overlap each other like the scales of a fish, are horny, and afford it efficient protection. On examining the true skin, it will be found covered with minute elevations, termed *papillæ*, in which the sensitive nerves are distributed.

FIG. 4.



SUDORIFEROUS GLAND.

Magnified 30 diameters.

a, convolutions of duct beneath the skin; *b*, *b*, under surface of the skin; *c*, *c*, fatty tissue; *e*, the duct; *d*, its opening on the surface. The three layers of which the skin is composed, are shown.

Within the skin we find the *sudoriferous*, or sweat glands, *sebaceous follicles*, and *hair bulbs*. The first secrete the sweat, and are very numerous, being estimated at about 417 to the square inch, or from 600,000 to 700,000 in a full grown man. Each of these glands consists of a convoluted tube passing through the entire thickness of the skin, and abundantly supplied with blood. The estimated length of these tubes in the body is 28 miles; an immense amount of drainage for a small surface.

Perspiration, or sweat, is composed principally of water, holding in solution a small proportion of effete material, supposed to amount to about one hundred grains, or nearly one-fourth of an ounce. Not only does the perspiration carry off this effete matter, but it also removes any excess of heat, a very important function.

It has been proved by experiment that if the skin was hermetically sealed up, as by the application of collodion or other material, an animal would die in five min-

utes. And even where but five-sevenths were occluded, death took place at a longer interval.

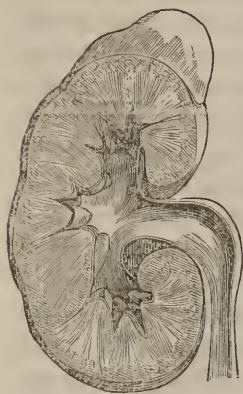
The sebaceous glands are usually situated at the root of a hair, and furnish an oily secretion for the lubrication of the skin. The hair follicles, are depressions in the true skin, profusely supplied with blood, which furnish the cells that are formed into hair. So long as these follicles are healthy, hair will be produced, but if destroyed by disease, the loss of hair will be permanent.

Examining the skin with reference to its functions, we must realize that the maintenance of the normal condition of this very extensive and highly sensitive tissue, is of primary importance in the preservation of health. This is satisfactorily proven by the morbid conditions so frequently and so speedily induced by the suppression of perspiration or by derangement of its normal functions. When we take into consideration the extent of the cutaneous tissue, the innumerable sudoriferous glands, the ducts of which penetrate it and empty upon its surface, through which much of the effete matters of the system should escape, and through which they do escape in a state of health, we can not be insensible to the important office it performs. We can also readily understand the influence which it is capable of exerting upon the whole system if its normal functions are arrested, and also the very salutary influence which may be exerted upon it and through it upon the entire system in subverting morbid action in disease.

THE URINARY APPARATUS AND SECRETION.

The urinary apparatus consists of the kidneys, two in number, which secrete the urine; of two tube ureters, which convey it away; of a hollow organ, the bladder, which serves as a receptacle for it; and of a second channel, the urethra, through which it is removed from the body.

FIG. 5.



The *kidneys* are situated in the posterior part of the abdomen, on the right and left side, and perfectly protected from injury by the structures surrounding them. Each kidney is about four or five inches in length, two and a half in breadth, and a little more than one inch in thickness, weighing from three to five ounces. In shape it very much resembles a bean, the depression in one border receiving the large renal artery, and giving exit to the renal

vein, and containing the pelvis of the kidney which is the dilated upper portion of the ureter. If we cut it in two from above, downward, we will find it presenting the appearance of Fig. 5, consisting of numerous cones, with their base outward, and their apex toward the pelvis of the kidney, and of a second structure darker colored, and about half an inch in thickness, and investing the entire kidney. The cones are composed of small tubes, called, *tubuli uriniferi*, which empty into the pelvis, and pass to the outer vascular coat. The external or vascular coat consists of small red globular bodies, formed of a dilatation of a uriniferous tube containing a tuft of capillary blood-vessels, of minute convoluted uriniferous tubes, and of arteries and veins. The water of the secretion is poured out in the funnel-shaped expansion of the tube, whilst the solid elements of the secretion are removed by the convoluted walls of the tube, in the manner heretofore named, when speaking of secretion.

The *ureters* pass from the kidneys to the bladder, and are membranous tubes about the size of a goose-quill, and some eighteen inches in length. The *bladder* is a hollow, muscular organ, situated within the pelvis, and capable of containing from one to two pints of fluid. It is composed of three coats, an external serous, derived from the serous

membrane of the abdomen, a middle muscular, which has an attachment in front to the bones of the pelvis, and an internal mucous lining. Its function is simply to receive and contain urine for a suitable period, and then expel it from the body. The urine is expelled, partly by the contraction of its own muscular tissue, and partly by the muscles of the abdomen. The *urethra* is the canal that conveys the urine from the bladder out of the body, and is about two inches in length in the female, and about nine inches in the male, and has an average diameter of about three-eighths of an inch. It consists of a membranous portion, lined by a mucous membrane, the latter of which is very delicate and sensitive. Closely connected with the urinary organs, is the sexual system of both male and female, which will be fully described in Vol. II.

The urine is a yellowish, amber-colored fluid, possessing a strong, disagreeable odor, and a bitterish saline taste. The average quantity of urine passed in twenty-four hours, is estimated at thirty ounces in summer, to forty ounces in winter, the solid matters varying from 20 to 70 parts in 1,000, amounting to from 600 to 700 grains, the remainder being water. According to Golding Bird, the solids of the urine in man in twenty-four hours is as follows:

	Grains.
Urea, - - - - -	270.
Uric acid, - - - - -	7.6
Fixed salts, - - - - -	150.
Organic matters and vegetable saline combinations,	176.

In a physiological view, the urine may be regarded as arising from three general sources, each acting alike in preserving the equilibrium of the delicately-adjusted balance of the secreting and depurating functions of the body. The effects of copious aqueous potations producing a free discharge of pale urine, at once indicates one source of the great bulk of the urinary secretion, and demonstrates one of the most important functions of the

kidneys in their pumping off any excess of fluid which may enter the circulation. A second great duty of these organs is shown in the physical and chemical characters of their secretion after the digestion of food is completed. Here it is no uncommon circumstance to detect the presence of some traces of the elements of an imperfectly digested meal; and in unhealthy and irritable states of the digestive organs, to discover some abnormal constituent in the urine arising from the incomplete assimilation of the recently digested food. Of the former of these states, the peculiar odor and color of the urine, after the ingestion of asparagus, seakale and rhubarb, afford an example; and a good illustration of the latter is met with in the copious elimination of oxalic acid from the blood shortly after a meal in some cases of irritative dyspepsia. It is, indeed, a general law, that any substance which has entered the circulating mass, and not being required for the nutrition of the body, nor forming a normal element of healthy blood, always escapes from the system by way of the kidneys, providing it exists in a state of complete solution. Hence these most important emunctories have the duty of removing any imperfectly assimilated elements of the food which have been absorbed, while traversing the small intestines, and entered the circulating mass; as well as excreting the often noxious results of unhealthy digestion. The third function of the kidneys is their serving as outlets to evolve from the animal organism those elements of the disorganization of tissues which can not perform any ulterior process in the economy, nor be got rid of by the lungs or skin.

“It is well known that our bodies are always in a kind of transition state; that during each moment of our existence, every atom of the frame is undergoing some change or other; the old matter is absorbed and thrown off at one or the other of the excretory outlets of the body, and new matter is deposited from the blood to take its place. The old and effete atoms of the animal structure are not

excreted in the form of dead tissue, but becoming liquefied they re-enter the circulation, their elements being re-arranged; one series of combinations thus produced, rich in nitrogen, is excreted by the kidneys, while those products which contain a preponderance of the inflammable elements, carbon, hydrogen and sulphur, are called upon to perform, chiefly through the medium of the liver, an important office, previous to their final elimination from the system."—*Bird*.

The principal constituent of the urine is eminently poisonous if retained within the blood, giving rise, if in small quantity, to disturbance of the brain and nervous system, and of the stomach; whilst if in large quantity it produces stupor, coma, convulsions and death. An entire arrest of the secretion for twenty-four hours would prove fatal, though a person might live for several days with but partial suppression.

THE BOWELS AS EXCRETORY ORGANS.

We have already considered the intestinal canal with reference to its principal function—the digestion of food—but it has another and important one as an excretory organ. The material discharged from the bowels daily as *feces*, consists in part of the debris of the food, but principally of material thrown off from the blood through the intestinal wall. There seems to be no proper secreting structure for this purpose, and it is possible that it is effected by the mucous membrane alone. The quantity of fecal discharge from the bowels daily, averages about six ounces, but at least 75 per cent. of this is water, so that the solids do not amount to more than one-and-a-half ounces.

Torpor of the bowels deranges the process of digestion, and induces disease. In this condition, digestion is imperfectly performed, and frequently food is retained in an imperfectly digested condition, much longer than the laws

of health will tolerate. While retained, it is mingled with the various products of secretion eliminated from the blood through the wall of the canal. This heterogeneous mass becomes more irritating, and we may add, disease-creating, in proportion to the time it is retained in the bowels. The more liquid portions are re-absorbed into the blood, contaminating that fluid, causing sick headache, pain in the back and limbs, loss of appetite, fever, etc.

THE RESPIRATORY APPARATUS AND ITS FUNCTION.

The respiratory apparatus consists of the nose, pharynx, larynx, trachea, bronchial tubes and lungs. (See Fig. 6.) The nose is an organ of special sense, and will be described hereafter; we notice it now, simply as the passage by which the air gains the lungs; air may enter through the mouth but this is not common. The pharynx is the membranous sac immediately behind the tongue, and forms the principal part of what is generally spoken of as the throat, forming part of both the air passages, and the passage for the food.

If the tongue is depressed, and we look into the mouth, we will notice a constriction at the posterior part of the tongue, called the *fauces*, and situated at this point, two almond shaped glands—the *tonsils*. Hanging from the roof of the mouth at this point, is the *soft palate*, with a smaller depending portion—the *uvula*—and posterior to, and below the tongue, a reddish substance projecting upward—the *epiglottis*—the first portion of the larynx. Behind all these we notice a somewhat large cavernous space, which is the *pharynx*, the part first spoken of. These various parts assist in the acts of delutition, respiration, and modulation of the voice, and their change by disease is very unpleasant, and sometimes gives rise to serious consequences.

The larynx is situated immediately below the tongue, and not only forms a part of the air passages, but is especially

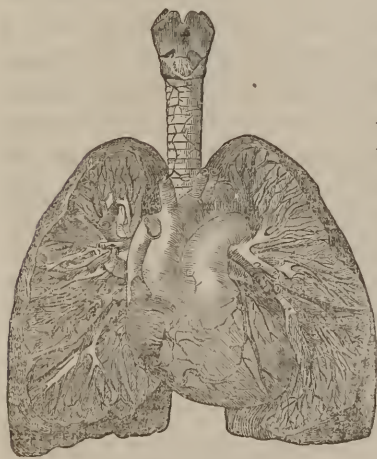
interesting as the organ of the voice. It is composed of a frame-work of seven cartilages, articulated together by as perfect joints as the knee or elbow. These cartilages are moved by several small muscles, which varies the size and form of the passage through it. If we examine its cavity, we will find it divided by two prominent elevations of the mucous membrane on each side, which are caused by two bands of fibrous tissue that pass from behind forward, and are called the vocal cords. The cartilages of the larynx and muscles are so arranged that these cords can be made tense or relaxed, brought near together to diminish the aperture, or drawn apart to relax it. Hence the great range of the human voice, commanding two or three octaves. Modulations of the voice take place in the throat, nose and mouth, and articulation by the tongue, teeth and lips.

The *trachea* is the continuation of the air passage downward from the larynx. It is a cylindrical tube about one inch in diameter, formed of a skeleton of cartilaginous rings, covered by fibrous tissue and lined by mucous membrane. These rings do not come together by one-fourth to one-third of an inch behind, as is also the case with the bronchial tubes; the interspace being filled by muscular fibre, the diameter of the tubes can be greatly lessened, as is the case in the act of coughing and sneezing, and the cause of the difficult breathing in asthma.

As just remarked, the *bronchial tubes* very closely resemble the trachea. They commence by a bifurcation of the air passage immediately below the third rib, and pass one to the right, and one to the left lung, distributing branches to all parts of them. When they become very small, the cartilaginous rings are replaced by plates of cartilage, and at last these cease, and the tubes consist simply of fibrous walls. Each minute bronchial tube forms a miniature lung; dividing into *intercellular* passages, these are studded with air cells, like grapes upon a stem, and so numerous that they are estimated at 600,000,000 in a grown man.

Each lobule receives a branch of the pulmonary artery, which is distributed in minute capillary vessels on each air cell, the blood being received by the pulmonary veins and carried back to the heart. The air cell is composed of a very delicate membrane, and the carbonic acid gas passes freely through it from the blood to the air in the vesicle, and oxygen passes in the opposite direction from the air cell to the blood. It is in this manner that venous blood is changed into arterial.

FIG. 6.



LUNGS AND HEART.

The *lungs* are formed of an aggregation of these lobules, the bronchial tubes which convey the air, the pulmonary arteries and veins, the bronchial arteries and veins for the nutrition of its tissues, nerves, and lymphatic vessels. These various parts are united together by delicate fibrous tissue, and the whole covered with a complete investment of serous membrane called the *pleura*.

The lung is thin in front and below, and small as it passes up to the root of the neck, the largest portion being situated in the posterior part of the chest, on each side of the spinal column. The point where the bronchial tubes and blood-vessels enter, is called the root of the lung.

The serous membrane that invests the lung is reflected from it, and lines the walls of the chest, the *pleura* forming a shut sac. Owing to this arrangement a vacuum is formed between the lung and the walls of the chest, which adhere together, as does the glass to the receiver of the air-pump, or a boy's sucker formed of damp leather, when he presses it with his foot upon a stone. It is this attach-

ment of the lung to the walls of the chest that gives them motion, as they possess in themselves neither the power to dilate nor contract.

The cavity of the thorax, as we have already seen, is formed of twelve ribs on each side, which arise from the dorsal portion of the spine, and pass backward, then forward and downward. Their direction is such that if their anterior extremities are raised, the diameters of the cavity of the chest are increased. The muscles of the chest are so arranged as to accomplish this. The inferior wall of the chest is formed of a single muscle, which, arising from the margin of the ribs, passes upward in the shape of a basin or funnel, the concavity being downward. When it contracts, its apex is drawn down, and it becomes level. The respiratory function consists, then, in an elevation of the ribs, and drawing downward of the diaphragm; the lungs being attached to the walls of the chest, as already described, the air is forcibly drawn in. The abdominal muscles acting, the ribs are drawn down, and the diaphragm thrown back, and the air is forced out of the lungs.

The lungs always contain a considerable amount of air, which is proved by portions of them floating after death. This fact is made use of to determine whether a child is still-born, or has been murdered; as in the first case, if the child has not breathed, its lungs are solid, and sink in water, while, if it has respired but once, they will float. The capacity of the lungs is indicated by the quantity of air which a person can expel from his lungs by a forcible expiration after the deepest inspiration he can make, and averages about 225 cubic inches in a full grown, healthy person. Though the lungs have this capacity, it is supposed that not more than from 20 to 25 cubic inches of air are changed in ordinary respiration. From sixteen to eighteen respirations are made per minute, and the amount of air respired in twenty-four hours amounts to

between three and four thousand gallons, containing about three-fourths of a pound of carbon.

Taking these facts as data, we will readily understand the importance of large sleeping apartments, school-rooms and public buildings. Experience seems to have fixed 800 cubic feet as the minimum of air that can be safely assigned for each individual, except when extraordinary provisions are in operation for its constant renewal by ventilation.

Carpenter draws the following conclusions from an extended series of observations: "In all climates, and under all conditions of life, the purity of the atmosphere habitually respired is essential to that power of resisting disease, which, even more than the habitual state of health, is a measure of the real vigor of the system; for, owing to the extraordinary capacity which the human body possesses of accommodating itself to circumstances, it not unfrequently happens that individuals continue for years to breathe a most unwholesome atmosphere, without apparently suffering from it; and thus, when they at last succumb to some epidemic disease, their death is attributed solely to the latter—the previous preparation of their bodies for the reception and development of the zymotic poison being altogether overlooked. It is impossible, however, for any one who carefully examines the evidence, to hesitate for a moment in the conclusion, that the fatality of epidemics is almost invariably in precise proportion to the degree in which an impure atmosphere has been habitually respired." That an atmosphere loaded with putrescent exhalations will furnish a material capable of receiving and propagating the seeds of disease, is proved by all our observations, and that the rate of mortality, severity and number of diseases, may be enormously decreased, by strict attention to the means of promoting atmospheric purity, is equally evident.

THE LYMPHATIC SYSTEM AND ITS FUNCTION.

In addition to the arteries and veins, we have another system of vessels, distributed minutely through the entire body, carrying a whitish fluid called lymph. Unlike the other, these do not become much larger as they approach the center of the body, but the principal channels are more numerous. Associated with these vessels are certain bodies called *lymphatic glands*, which are formed by the division into several branches of one or more lymphatic vessels, and the convolutions of these. They receive an abundant supply of blood, and the various parts are connected together by fibrous tissue, and the entire gland receives an investment of the same. These glands are found principally in the neck on each side, under the arms, in the groins, and within the cavities of the body. Enlargement and disease of these glands is the principal manifestation of scrofula.

It is supposed that the lymphatic vessels gather up any material in the tissues that may be further used in the body, and convey it back to the general circulation. It is true, that the function of this circulation is not fully understood, but from the character of the lymph, this seems to be the most reasonable supposition. The lymphatics of the intestinal canal are called lacteals; they absorb the chyle and carry it to the large lymphatic trunk—the *thoracic duct*, which empties it into the venous system.

THE NERVOUS SYSTEM.

The nervous system consists of central nervous masses in which nerve force is generated, and nerve trunks that convey it to all parts of the body. The nervous system is divided into two distinct parts, one of which controls the functions of digestion, assimilation, the circulation of the blood, nutrition and secretion, and is properly termed the vegetative system; the other controls the functions of

animal life, is under the direction of the will, and called the cerebro-spinal system.

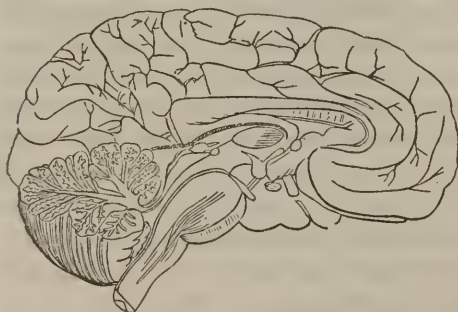
If we carefully examine the nerve centers, we will find them composed of nerve cells, nerve granules, and nerve fibers. Nerve cells and granules are always of a grayish, ashy color, as are also some of the nerve fibers, and in the brain, forms the outer gray layer, as well as the grayish matter internally, the gray substance of the spinal cord, and of the sympathetic ganglia. Nerve cells are very minute bodies, shown by the microscope to be composed of three or four cells one within another. Owing to this structure it has been surmised that nerve force is generated in the same manner as is electricity in a Groves' eup. Passing from this cell is a gray nerve fiber, which usually goes to a nerve granule, from which the white nerve fibers arise. All the white nerve structure of the brain and spinal cord, as well as the nerve trunks, is composed of minute nerve fibrillæ from the $\frac{1}{300}$ to $\frac{1}{1250}$ of an inch in diameter. They possess but little consistence in the nerve centers, and are in consequence, traced with difficulty, but in the nerve trunks they receive an investment of fibrous tissue which gives them great strength. A nerve fibril commences at a nerve cell, and passes to its termination at the surface of the body without change of size; a nerve trunk being composed of multitudes of these fibrils, is said to send branches to various parts, but the single fibril passes directly from its origin to its termination.

In the *cerebro-spinal* system, nerves are divided into two classes, nerves of sensation, and nerves of motion. The first convey impressions from without to the brain, while the second carry the commands of the brain to the various muscles of the body.

The *brain* is the large nervous mass contained within the cranium, weighing from two and a half to three pounds. It is invested by three membranes—an external dense fibrous membrane called the *dura mater*; a middle serous membrane, composed of two layers, forming a

shut sac, the *arachnoid*, and an internal vascular, consisting principally of blood-vessels, which penetrate the brain in all directions. It is ovoid in form, somewhat flattened at its base, which is marked by several depressions, some of which are caused by the configuration of the bones of the cranium, while others mark its division into different parts. Passing from before, backward, is a large fissure of considerable depth, which divides it into two hemispheres. It is, in fact, two brains connected together by nerve fibers.

FIG. 7.



THE BRAIN.

A section in the median line, showing the structure of one hemisphere.

The brain is divided into

a superior portion called the *cerebrum*, a posterior portion the *cerebellum*, and several parts at the base termed *sensory ganglia*. The cerebrum seems to be composed of a nervous membrane folded together, the folds being called con-

volutions, which are distinctly marked. The external surface of the convolutions is composed of gray substance the internal of white. The two hemispheres of the cerebrum are connected together by a large mass of white substance—the *corpus callosum*—beneath which are several cavities called *ventricles*. The *cerebellum* is situated under the posterior part of the cerebrum, and seems to be formed in a similar manner, though the convolutions are much smaller. The *sensory ganglia* consist of two nervous masses, of gray and white substance, on each side of the median line, at the base of the brain. Fibers of communication can be readily traced from them to the cerebrum above, and two

large bundles of fibers pass downward to the *medulla oblongata*, and are termed the *crura*, or legs of the brain. The cerebellum also communicates with the medulla at the same point. This brief and imperfect description of a very intricate organ, must be assisted and interpreted by the accompanying cuts.

The *spinal cord* passes downward from the medulla oblongata through the entire length of the spinal canal, sending nerves in this course to all parts of the body. It is composed of white nerve fibers passing from the brain, and of gray nerve substance from which other nerve fibers arise. It is thus, in part, a mere nerve trunk, and in part a nervous center, in which nerve force is generated. It also has three envelops, or coats, like the brain, though the internal, instead of being vascular, is fibrous.

We wish, now, to briefly consider the function of these various parts, a subject of no little difficulty. Kirkes remarks, that, "taking together all the parts of the cerebro-spinal nervous system, except the cerebral hemispheres, they appear to include the apparatus, 1st, for the direction and government of all the unfelt and involuntary movements of the parts which they supply; 2d, for the perception of sensations; and 3d, for the direction of such instinctive and habitual movements as do not require the exercise of judgment, deliberation, memory, or any other intellectual act. The medulla oblongata and spinal cord have their office in none but involuntary and unconscious movements; but above the medulla, the pons, and other organs, appear capable of such conditions as the mind may perceive, and of being, by the will, excited to the production of orderly and voluntary movements.

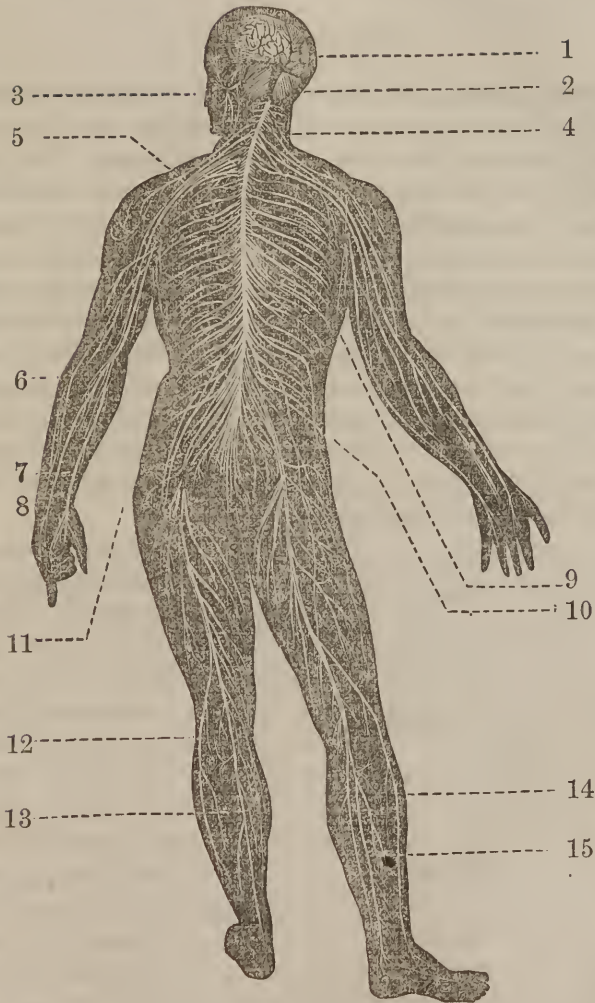
"As regards the cerebral hemispheres, they are those of the organs by which the mind, first, perceives those clear and more impressive sensations which it can retain, and judge according to; secondly, performs those acts of will, each of which requires a deliberate, however quick, determination; thirdly, retains impressions of sensible things, and

reproduces them in subjective sensations and ideas, fourthly, manifests itself in its higher and peculiarly human emotions and feelings, and in its faculties of judgment, understanding, memory, reflection, induction and imagination, and others of the like class. The cerebral hemispheres appear thus to be the organs in and through which the mind acts, in all these its operations, which have immediate relation to external and sensible things."

Nine pairs of nerves arise from the brain, and thirty-one from the spinal cord. Of those from the brain, the first and second, a branch of the fifth, and part of the seventh, are nerves of special sense, and are distributed to the nose—*olfactory*; to the eye—*optic*; to the tongue—*gustatory*; and to the ear, *auditory*. The third and fourth nerves pass to the muscles of the eye; the fifth, or *trifacial*, is the sensitive nerve of the face; the sixth passes to a muscle of the eye; a part of the seventh is distributed to the face; the eighth is composed of three nerves, *glossopharyngeal*, distributed to the throat and tongue, *pneumogastric*, which governs the action of the respiratory apparatus, and sends branches to the heart and stomach, and *spinal accessory* distributed to the neck. The ninth pair of nerves, or *hypoglossal*, are distributed to the muscles of the tongue. The thirty-one spinal nerves supply all the voluntary muscles below the head, and furnish sensitive nerves to all parts of the system except the face.

The *sympathetic* or organic system of nerves, consists of two nervous cords, situated on the anterior surface of the spinal column, and which have certain enlargements upon them termed *ganglia*. These ganglia are thirty-three in number on each side, and are composed of nerve cells and granules, doubtless furnishing the nerve-force for this system. As before remarked, the sympathetic nervous system supplies the organs of digestion, secretion and excretion, the blood-vessels, and undoubtedly control the nutrition of the body. The sympathetic nerves are very intimately connected with the spinal cord, by fibers of

FIG. 8.



NERVOUS SYSTEM.

1, Cerebrum. 2, Cerebellum. 3, Facial Nerve. 4, Spinal Cord. 5, Brachial Plexus. 6, Internal Cutaneous Nerve. 7, Median Nerve. 8, Ulnar Nerve. 9, Intercostal Nerves. 10, Lumbar Nerves. 11, Sciatic Nerve. 12, Peroneal Nerve. 13, Posterior Tibial Nerve. 15, Anterior Tibial Nerve.

communication; hence the intimate sympathy between the two.

PHRENOLOGY.

Before leaving this subject it will be expected that I give an opinion upon the "science of the mind," about which so much has been said of late years. That the principles of phrenology are true there can be no doubt, and they are admitted by all educated men. But the details of it, as the mapping out of the various minute organs upon the skull, and proposing to determine them by the elevations and depressions of bone, is most certainly, to some extent, a humbug. It is very difficult to separate the true from the false, and when truth is burthened with falsehood, the probabilities are that at first it will be rejected. Phrenologists can determine the general character of an individual, but they do it by the general configuration of his head, rather than from bumps.

FIG. 9.



Figure 9, from a phrenological work, illustrates the opinion I have just expressed; it presents six divisions, each of which can be distinctly defined, not by any perceptible elevation, but by its proportionate dimensions compared with other parts. The first division, embracing the forehead immediately above the eyes, contains the perceptive faculties, and its

size and prominence is a pretty accurate index of the intellect. The division immediately above, forming the upper part of the forehead, is determined to be the seat of reason. The upper and anterior division embraces the moral sentiments, and gives elevation to character. Immediately below this, we have a group of faculties that might be denominated, semi-intellectual sentiments. Still, below

this, and surrounding the ear, we find the selfish propensities. The posterior division embraces the domestic propensities; and the last division at the upper and posterior part of the head, the selfish sentiments.

Whilst I doubt the possibility of making those minute divisions that are described by phrenologists, we must admit that the brain contains all the organs they describe, if not more. The only difficulty I see, is the determining of them by perceptible elevations or depressions of the bones of the cranium. There is no doubt that the bones are moulded by the brain beneath, and that they change their form as it changes its shape, but as yet I have not been able to see the minute elevations and depressions mentioned. The following from Chambers' Information for the People, will give the principles of phrenology in brief:

“THE PRIMITIVE FACULTIES OF MIND, AS CONNECTED WITH THEIR ORGANS IN THE BRAIN.”

“Mind, which was considered by the metaphysicians as a single thing or essence, was said by them to be capable of being in different *states*, in each of which state it made one of its various manifestations, as memory, judgment, anger, etc. In no particular does the phrenological hypothesis differ more from the metaphysical than in this. The phrenological doctrine is, that the brain, the organ of the mind, is divided into various faculties, each of which has its own mode of acting. It is held—

“*First.* That by accurate observation of human actions, it is possible to discriminate the dispositions and intellectual power of man, such as love, anger, benevolence, observation, reflection, etc.

“*Second.* That the true form of the brain can be ascertained from the external form of the head; the brain, though the softer substance, being what rules the shape of the skull, just as a shell takes its form from the animal within.

“*Third.* The organs or parts into which the brain is

divided, all of which organs are possessed by every individual except in case of idiocy, appear on the brain's surface in folds or convolutions, somewhat like the bowels or viscera of an animal, but have a well ascertained fibrous connection through the whole substance of the brain with one point at its base, called the *medulla oblongata*, which unites the brain to the spinal cord. The organs have thus each a conical form from the medulla oblongata to the surface; the whole being not inaptly compared to the stalks and flower of a cauliflower.

"*Fourth.* The brain is divided into two equal parts called *hemispheres*; on each side of the fosse or division between these hemispheres the same organ occurs; all the organs are therefore double, in analogy with the eyes, ears, etc. But when the term *organ* is used, both organs are meant. The organs which are situated close to the middle line drawn vertically on the head, though close to each other, are nevertheless double; for example, Individuality, Benevolence, Firmness, etc.

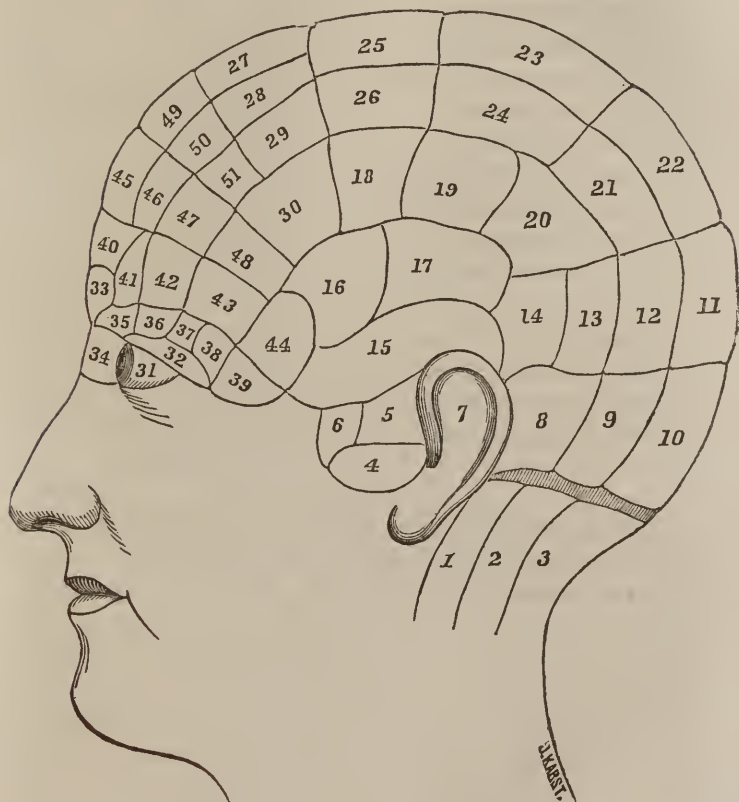
"*Fifth.* Besides the brain proper, there is a smaller brain, attached to the hinder part of the base of the brain, called the *cerebellum*.

"*Sixth.* The brain, including the cerebellum, is divided into the *anterior*, *middle*, and *posterior lobes*. The cerebellum forms part of the posterior lobe. The anterior lobe contains all the intellectual faculties; the posterior and lower range of the middle lobe are the regions of the animal propensities; while the moral sentiments are found, with a sort of local pre-eminence, to have their organs developed on the top or coronal surface of the head."

Figure 10 represents the location of the various faculties of the mind, as designated by phrenologists, and time, which proves all things, has given conclusive evidence of its general correctness. Some persons claim to have that skill in manipulation, and delicacy of touch, that they can determine the exact character of an individual by the contour of each individual organ. Whilst doubting this, I

readily admit that a person skilled in phrenology can detect the general character and intellectual standing of most individuals.

FIG. 10.



- | | |
|----------------------------|------------------------------|
| No. 1, Animal Sensibility. | No. 8, Vitativeness. |
| " 2, Muscular Motion. | " 9, Philo-ancestry. |
| " 3, Amativeness. | " 10, Philo-progenitiveness. |
| " 4, Pneumativeness. | " 11, Inhabitiveness. |
| " 5, Alimentiveness. | " 12, Adhesiveness. |
| " 6, Hydrativeness. | " 13, Gregariousness. |
| " 7, Sanativeness. | " 14, Combativeness. |

No. 15, Destructiveness.	No. 33, Individuality.
“ 16, Acquisitiveness.	“ 34, Form.
“ 17, Secretiveness.	“ 35, Size.
“ 18, Watchfulness.	“ 36, Weight.
“ 19, Cautiousness.	“ 37, Color.
“ 20, Resentfulness.	“ 38, Order.
“ 21, Approbativeness.	“ 39, Number.
“ 22, Self-Esteem.	“ 40, Eventuality.
“ 23, Firmness.	“ 41, Locality.
“ 24, Conscientiousness.	“ 42, Time.
“ 25, Submissiveness.	“ 43, Melody.
“ 26, Hopefulness.	“ 44, Plan.
“ 27, Benevolence.	“ 45, Comparison.
“ 28, Imitativeness.	“ 46, Casuality.
“ 29, Marvellousness.	“ 47, Method.
“ 30, Perfectiveness.	“ 48, Harmony.
“ 31, Common nouns.	“ 49, Analogy.
“ 32, Proper nouns.	“ 50, Suggestion.
	“ 51, Evidence.

There is nothing more clearly established than that every function of the brain may be increased or diminished by exercise, or want of use. This is in accordance with the general law, that any part that is continually called into action, receives a more abundant supply of blood, its nutrition is increased, and it becomes larger. The brain is no exception to this rule, as it increases in size and density in proportion to its use; and any portions that are called into action more frequently than others, obtain a proportionately greater development. We have heretofore seen that a group of muscles would increase in size by use, of which we have very marked examples in the arm of the blacksmith, and the legs of public dancers. And it is a well known law of our being, that parts increase in size and strength to meet all legitimate demands upon them. Conversely, we find that parts diminish in size, and lose their function by want of use. Thus

we have reported instances in which Eastern Fakirs, by retaining their arms in one position for years, would finally lose the use of them.

We have very marked examples of this natural law, in the occasional development of the special senses. A sailor is able to see a ship in the distance, and even determine its size, character and nationality, when a landsman would be unable to perceive any object, or, at least, very indistinctly. A musician has so developed his organ of hearing, that he is enabled to detect the most minute variations in sound; and the Indians, and even white hunters, so cultivate this sense that they are enabled to hear sounds that are entirely inappreciable to the uneducated ear.

The various functions of the brain may be increased or diminished; and this is a matter of very great interest to parents, educators, and to each individual. Each person's destiny is, to some extent, in his own hands, and he has the power of development in an almost unlimited extent. Does he wish to be learned—continued exercise will develop observation, the reasoning faculties, and memory, almost as far as may be desired by the most sanguine. Does he wish to influence the people by oratory—careful cultivation and exercise will, as was the case with Demosthenes, give power and freedom of speech.

Exercise not only gives increased power to an organ or function, but as this depends upon an increase of structure, it is, to a very considerable extent, permanent. Thus the boy who continues to give way to, or, as we might more properly say, cultivate his evil propensities, will invariably become a bad man, and if this is continued up to the age of forty or fifty, a reformation will be almost impossible. Even at a much earlier age it will be found very difficult to break off bad habits, and the evil disposition will continue to annoy the individual as long as he may live. On the contrary, if the moral faculties are cultivated, they become stronger year by year, until they so

predominate that the man is a good man almost in spite of himself.

Spurzheim remarks that, "in the greater number of persons, the lower faculties are the most active, and several of them more so than others. This explains the great activity of the animal nature of man. Again, single individuals, each of the sexes, the inhabitants of certain provinces, and whole nations, possess individual faculties more active than others. These primitive dispositions must first be studied, and each power cultivated in harmony with the dictates of general morality. Any feeling that is naturally too active, should never be exerted. Hence, in those children, and nations, whose character is strongly marked by the love of approbation, this feeling should never be nourished by education; for, if predominant, it becomes the cause of great mischief, and it is evidently a great fault to encourage it continually, and to hold out approbation and glory as the principal reward of any action.

"On the other hand, no strong feeling can be overcome at once; its activity will appear in one way or another, and the object of the teacher or parent ought to be, to make the best use of it. The love of approbation, for instance, may lead to war or peace, to idleness or industry, to vice or virtue, according to the object approved by the directors. It is the same with any fundamental power. Has not every crime been committed, and every virtue exercised, under pretence of glorifying God, or of obeying God rather than men?

"The faculties *proper* to man being given to govern every where, are to be cultivated incessantly, and in every one, while the powers common to man and animals, should be encouraged only in so far as they contribute to the great end of the satisfaction of the properly human nature, or to general happiness. The animal faculties may be employed as means, but not any one should become the aim of our existence. They may do good,

when subordinate, but they produce much evil, as soon as their gratification becomes the aim of life. It is remarkable, that all institutions, true Christianity excepted, are founded on selfish principles, and that by far the greater number of the motives, which they propose to mankind, originate in the animal feelings."

Youth is the proper time for the commencement of proper mental training, and for the development of the higher faculties, and repressing, by the influence of the will, the baser passions. It should be firmly impressed upon the young that they hold their destiny in their own hands, and that they have the power, inherent in themselves, of almost unlimited development. They can now so strengthen the will and reasoning powers, that it will be sufficient to regulate the mind through life. Conversely, they should understand that the animal passions and instincts may obtain such preponderance, if they now give way to them, as will render this life a failure, and entirely unfit them for happiness in the life to come.

There are no persons but what may become good men and women, as there are none but what might sink to the level of the brute, or become devils in human form. In each case the development is strictly in accordance with natural laws of growth by exercise, and if we had none other, this would be sufficient evidence of the truth of Holy Writ. While, then, we should set before the young the fact that their success in life is wholly in their own hands, they should be impressed that they are developing characters that endure through all eternity. The spiritual man has form and size like the natural man; and its development and growth is going on day by day, by the exercise of the mind in this life. If the better principles of our nature are exercised, they increase in strength; if the animal passions are exercised, they also increase—in the one case forming a character that will do good, and get good, in this world and the world to come; and in

the other that will do evil, and get evil, and fit the person for the society of evil spirits.

EXAMPLE.

Example is one of the most potent of instructors, though it teaches without a tongue. It is the practical school of mankind, working by action, which is always more forcible than words. Precept may point to us the way, but it is silent, continuous example, conveyed to us by habits, and living with us, in fact, that carries us along. Good advice has its weight; but without the accompaniment of a good example, it is of comparatively small influence; and it will be found that the common saying of "Do as I say, not as I do," is usually reversed in the actual experience of life.

All persons are more or less apt to learn through the eye, rather than the ear; and, whatever is seen in fact, makes far deeper impressions than anything that is read or heard. This is especially the case in early youth, when the eye is the chief inlet of knowledge. Whatever children see they unconsciously imitate; and they insensibly become like to those who are about them—like insects which take the color of the leaves they feed on. Hence the vast importance of domestic training. For whatever may be the efficiency of our schools, the examples set in our homes must always be of vastly greater influence in forming the characters of our future men and women. The home is the crystal of society—the very nucleus of national character; and from that source, be it pure or tainted, issue the habits, principles and maxims, which govern public as well as private life. The nation comes from the nursery; public opinion itself is for the most part the outgrowth of the home; and the best philanthropy comes from the fireside. "To love the little platoon we belong to in society," says Burke, "is the germ of all public affections." From this little central spot, the human

sympathies may extend in an ever-widening circle, until the world is embraced; for, though true philanthropy, like charity, begins at home, assuredly it does not end there.

Example in conduct, therefore, even in apparent trivial matters, is of no light moment, inasmuch as it is constantly becoming inwoven with the lives of others, and contributing to form their characters for better or for worse. The characters of parents are thus constantly repeated in their children; and the acts of affection, discipline, industry and self-control, which they daily exemplify, live and act when all else which they may have learned through the ear has long been forgotten. Even the mute action and unconscious look of a parent may give a stamp to the character which is never effaced; and who can tell how much evil has been stayed by the thought of some good parent, whose memory their children may not sully by the commission of an unworthy deed, or the indulgence of an impure thought? The veriest trifles thus become of importance in influencing the characters of men. "A kiss from my mother," said West, "made me a painter." It is on the direction of such seeming trifles when children, that the future happiness and success of men mainly depend. Fowell Buxton, when occupying an eminent and influential station in life, wrote to his mother, "I constantly feel, especially in action and exertion for others, the effects of principles early implanted by you in my mind;" and Lord Langdale, looking back upon the admirable example in life set him by his mother, declared, "If the whole world were put into one scale, and my mother into the other, the world would kick the beam." Mrs. Schimmel Pennick, in her old age, was accustomed to call to mind the personal influence exercised by her mother upon the society amid which she moved. When she entered a room it had the effect of immediately raising the tone of the conversation, and as if purifying the moral atmosphere—all seeming to breathe more freely, and stand more erectly. "In her presence," says the daughter, "I became for the

time transformed into another person." So much does the moral health depend upon the moral atmosphere that is breathed, and so great is the influence daily exercised by parents over their children by living a life before their eyes, that perhaps the best system of parental instruction might be summed up in these two words: "Improve thyself."

There is something solemn and awful in the thought, that there is not an act nor thought in the life of a human being but carries with it a train of consequences, the end of which we may never trace. Not one but, to a certain extent, gives a color to our own life, and insensibly influences the lives of those about us. The good deed or thought will live, even though we may not see it fructify, but so will the bad; and no person is so insignificant as to be sure that his example will not do good on the one hand, or evil on the other. There is, indeed, an essence of immortality in the life of man, even in this world. No individual in the universe stands alone; he is a component part of a system of mutual dependencies; and by his several acts, he either increases or diminishes the sum of human good now and forever. As the present is rooted in the past, and the lives and examples of our forefathers still to a great extent influence us, so are we by our daily acts contributing to form the condition and character of the future. The living man is a fruit formed and ripened by the culture of all the foregoing centuries. Generations six thousand years deep stand behind us, each laying its hands upon its successor's shoulders, and the living generation continues the magnetic current of action and example destined to bind the remotest past with the most distant future. No man's acts die utterly; and though his body may resolve into dust and air, his good or his bad deeds will still be bringing forth fruit after their kind, and influencing generations of men for all time to come. It is in this momentous and solemn fact that the great peril and responsibility of human existence lies.—*Smiles.*

VALUE OF PERSEVERANCE.

It is not accident, then, that helps a man in the world, but purpose and persistent industry. These make a man sharp to discern opportunities, and turn them to account. To the feeble, the sluggish and purposeless, the happiest opportunities avail nothing ; they pass them by, seeing no meaning in them. But if we are prompt to seize and improve even the shortest intervals of possible action and effort, it is astonishing how much can be accomplished. Watt taught himself chemistry and mechanics while working at his trade of a mathematical instrument maker ; and he availed himself of every opportunity to extend his knowledge of languages, literature and the principles of science. Stephenson taught himself arithmetic and mensuration while working as an engineman during the night shifts, and he studied mechanics during his spare hours at home, thus preparing himself for the great work of his life—the invention of the passenger locomotive. Dalton's industry was the habit of his life. He began in boyhood, for he taught a little village school when he was only about twelve years old, keeping the school in winter, and working upon his father's farm in summer. He would sometimes urge himself and companions to study by the stimulus of a bet, though bred a Quaker ; and on one occasion, by his satisfactory solution of a problem, he in this way won as much as enabled him to buy a winter's store of candles. He went on indefatigably, making his meteorological observations until a day or two before he died, having made and recorded upward of 200,000 in the course of his life.

With perseverance, the very odds and ends of time may be worked up into results of the greatest value. An hour in every day withdrawn from frivolous pursuits would, if profitably employed, enable any man of ordinary capacity very shortly to master a complete science. It would make an ignorant man a well-informed man in ten years. We

must not allow the time to pass without yielding fruits, in the form of something learned worthy of being known, some good principle cultivated, or some good habit strengthened. Dr. Mason Good translated Lucretius while riding in his carriage in the streets of London, going his rounds among his patients. Dr. Darwin composed nearly all his works in the same way, while driving about in his "sulky" from house to house in the country, writing down his thoughts on little scraps of paper, which he carried about with him for the purpose. Hale wrote his "Contemplations" while traveling on circuit. Dr. Burney learned French and Italian while traveling on horseback from one musical pupil to another in the course of his profession. Kirke White learned Greek while walking to and from a lawyer's office; and we personally know a man of eminent position in a northern manufacturing town, who learned Latin and French while going messages as an errand-boy in the streets of Manchester.

Elihu Burritt attributed his first success in self-improvement, not to genius, which he disclaimed, but simply to the careful employment of those invaluable fragments of time, called "odd moments." While working and earning his living as a blacksmith, he mastered some eighteen ancient and modern languages, and twenty-two European dialects. Withal, he was exceedingly modest, and thought his achievements nothing extraordinary. Like another learned and wise man, of whom it was said that he could be silent in ten languages, Elihu Burritt could do the same in forty. "Those who have been acquainted with my character from my youth up," said he, writing to a friend, "will give me credit for sincerity, when I say that it never entered into my head to blazon forth any acquisition of my own. * * * All that I have accomplished, or expect, or hope to accomplish has been and will be by that plodding, patient, persevering process of accretion which builds the ant-heap—particle by particle, thought by thought, fact by fact. And if ever I was

actuated by ambition, its highest and warmest aspiration reached no farther than the hope to set before the young men of my country, an example in employing those invaluable fragments of time called 'odd moments.'"

Daguesseau, one of the great Chancellors of France, by carefully working up his odd bits of time, wrote a bulky and able volume in the successive intervals of waiting for dinner; and Madame de Genlis composed several of her charming volumes while waiting for the princess to whom she gave her daily lessons. Jeremy Bentham in like manner disposed of his hours of labor and repose so that not a moment should be lost, the arrangement being determined on the principle that it is a calamity to lose the smallest portion of time. He lived and worked habitually under the practical consciousness that man's days are numbered, and that the night cometh when no man can work.

What a solemn and striking admonition to youth is that inscribed on the dial at All Souls, Oxford—" *periunt et imputantur*"—the hours perish, and are laid to our charge; for time, like life, can never be recalled. Melancthon noted down the time lost by him, that he might thereby re-animate his industry and not lose an hour. An Italian scholar put over his door an inscription intimating that whosoever remained there, should join in his labors. "We are afraid," said some visitors to Baxter, "that we break in upon your time." "To be sure you do," replied the disturbed and blunt divine. Time was the estate out of which these great workers, and all other workers, carved a rich inheritance of thoughts and deeds for their successors.

The mere drudgery undergone by some men in carrying on their undertakings has been something extraordinary, but the drudgery they regarded as the price of success. Addison amassed as much as three folios of manuscript materials before he began his "Spectator." Newton wrote his "Chronology" fifteen times over before he was

satisfied with it; and Gibbon wrote out his "Memoir" nine times. Hale studied for many years at the rate of sixteen hours a day, and when wearied with the study of the law, he would recreate himself with philosophy and the study of the mathematics. Hume wrote thirteen hours a day while preparing his "History of England." Montesquieu, speaking of one part of his writings, said to a friend, "You will read it in a few hours; but I assure you it cost me so much labor that it has whitened my hair."

The practice of writing down thoughts and facts for the purpose of holding them fast, and preventing their escape into the dim region of forgetfulness, has been much resorted to by thoughtful and studious men. Lord Bacon left behind him many manuscripts, entitled "Sudden thoughts set down for use." Erskine made great extracts from Burke; and Eldon copied Coke upon Littleton twice over with his own hand, so that the book became, as it were, part of his own mind. The late Dr. Pye Smith, when apprenticed to his father as a book-binder, was accustomed to make copious memoranda of all the books he read, with extracts and criticisms. This indomitable industry in collecting materials distinguished him through life, his biographer describing him as "always at work, always in advance, always accumulating." These notebooks afterward proved, like Richter's "quarries," the great store-house from which he drew his illustrations.—*Smiles.*

SELF-CULTURE.

Self-culture includes the education or training of all parts of a man's nature, the physical and moral, as well as the intellectual. Each must be developed, and yet each must yield something to satisfy the claims of the others. Cultivate the physical powers exclusively, and you have an athlete or a savage; the moral only, and you have an enthusiast or a maniac; the intellectual only, and you have

a diseased oddity, it may be a monster. It is only by wisely training all three together, that the complete man can be formed.

The ancients laid great stress on physical training, and a sound mind in a sound body was the end which they professed to aim at in their highest schools of culture. The Greek teachers were peripatetic, holding that young men should only learn what they could learn standing. The old English entertained a similar idea, embodied in the maxim, "The field in summer, the study in winter." Milton described himself as up and stirring early in the morning—"in winter, often ere the sound of any bell wakes man to labor or devotion; in summer, as oft with the bird that first rouses, or not much tardier, to read good authors, or to cause them to be read till the attention be ready, or memory have its full fraught; then, with clear and generous labor, preserving the body's health and hardiness, to render lightsome, clear, and not lumpish obedience to the mind, to the cause of religion, and our country's liberty." In his Tractate on Education, he recommends the physical exercise of fencing to young men, as calculated to "keep them healthy, nimble, strong, and well in breath, and also as the likeliest means to make them grow large and tall, and inspire them with a gallant and fearless courage," and he further urges that they should "be practiced in all the locks and grips of wrestling, wherein Englishmen were wont to excel."

In our day such exercises have somewhat fallen into disrepute, and education has become more exclusively mental, very much to the detriment of the bodily health. The brain is cultivated at the expense of the members, and the physical is usually found in an inverse ratio to the intellectual appetite. Hence, in this age of progress, we find too many stomachs weak as blotting-paper— hearts indicating "fatty degeneration"—unused, pithless hands, calveless legs and limp bodies, without any elastic spring in them. But it is not merely health that suffers

by neglect and disuse of the bodily organs. The mind itself grows sickly and distempered, the pursuit of knowledge itself is impeded, and manhood becomes withered, twisted, and stunted. It is, perhaps, to this neglect of physical exercise that we find among students so frequent a tendency toward discontent, unhappiness, inaction, and reverie, displaying itself in a premature contempt for real life, and disgust at the beaten tracks of men—a tendency which in England has been called Byronism, and in Germany Wertherism. Dr. Channing noted the same growth in America, which led him to make the remark that “too many of our young men grow up in a school of despair.” The only remedy for this green-sickness of youth is abundant physical exercise, action, work, and bodily occupation of any sort.—*Smiles.*

THE HUMAN TEMPERAMENTS.

For two thousand years the temperaments have been a subject of study with physicians and educated men, though but little progress had been made from the days of Hippocrates up to the present century. My friend, W. Byrd Powell, M. D., who has made this his study for over a quarter of a century, has kindly furnished me with the following description, which is not only interesting to the general reader, but should be thoroughly studied by every man, woman and child, as it embraces subjects of the greatest importance to our race :

Hitherto the importance of a knowledge of the temperaments was thought to be with exclusive reference to the practice of medicine, and that a knowledge of them is highly inservient in this relation, no one probably doubts, and hence it is much to be lamented that they are so little understood as they are by physicians generally.

But the great value of a knowledge of the temperaments is in relation to the institution of marriage, the most important known to our species, because a marriage contracted in contravention of their laws, is invariably

attended with either sterility, imbecile, epileptic or scrofulous children.

With reference to medical practice, a knowledge of the temperaments is of great importance to physicians only, and their knowledge should be more than descriptive, it should embrace a knowledge of their dynamic influence over the constitution; but with reference to marriage, it is the duty of every individual, without distinction of sex, to have a descriptive knowledge of them, and this can be achieved by every clever Miss or Master of ten summers.

As, with reference to the science of physiological marriage, a descriptive knowledge of the temperaments is, alone, requisite at present, therefore, I will confine myself to a description of them. With this introduction I proceed with my subject.

That system of the temperaments which I adopt, with one important modification, is known as the Hippocratic, in honor of its founder, Hippocrates, who lived in the fifth century before our era, and to the shame of the medical profession, the subject has been, comparatively, but little advanced since his time. Hippocrates treated of four conditions or temperaments, as being in their nature elementary, namely, the sanguine, the bilious, the lymphatic, and the melancholic. But the two latter are not strictly elementary.

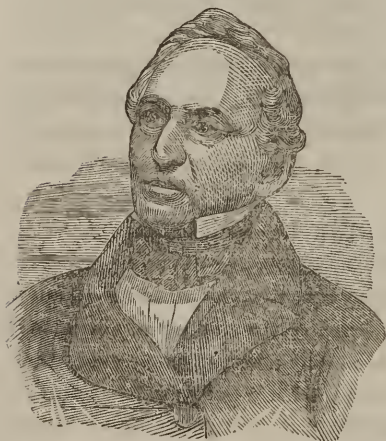
What is temperament? As I prefer my own definition to any other I have seen, I will respond in the language of it. It is a *sui generis* mode of human life compatible with health and longevity.

I.—The Sanguine Temperament.

The altitude of the men of this class may be said to range between five feet ten inches and six feet four inches. The flesh is firm and strong. The locomotive movements are graceful, but not particularly supple. This temperament is further distinguished by light hair, fair skin and

grayish-blue eyes. The nose is rather large, and generally, to some extent, it is aquiline, but sometimes it is straight on the dorsum, or has the Roman form. But with the females, generally, it has the Grecian form—straight on the dorsum, delicate in size, and beautifully formed. The lips close handsomely in both sexes, and are of medium thickness; the superior one is more full and prominent than the inferior.

FIG. 11.



EDWARD EVERETT.

When the men stand erectly, the occiput is on the same plane with the spinal column. Sanguine people, on the approach of old age, are very liable to become fat or obese; as an illustration of this fact, I may add, that Gen. Scott has become so fat as to be greatly helpless.

Physiologists generally teach that red hair and a florid complexion indicate the highest de-

gree of this temperament; but this, I am sure, is an error.

NOTE.—Aristotle has stated it as a law that parties of the respective sexes having light hair, fair skin and blue eyes, should not marry, because sterility will be the result. This is satisfactory evidence to me that he knew as little about this subject as physiologists generally do. Now the truth is, our species presents four temperaments, which are respectively distinguished by light hair, fair skin and blue eyes, and yet, in constitution, they are very different. Consequently, some of the most fruitful and physiological marriages obtain among them. Is it, however, a law, that when the respective parties to a marriage

are sanguine, sterility will be the result; and as an illustration of this law I may cite Washington and his wife, who respectively were sanguine and sterile.

II.—The Bilious Temperament.

FIG. 12.



GUSTAVUS ADOLPHUS.

In this temperament the men, generally, are neither so tall nor heavy as those of the preceding temperament. The person and features of this variety of our species are angularly and harshly defined. Of this temperament we have two varieties; one is distinguished by black and coarse hair, darkly brown eyes, and a

dark or brownish complexion. The other variety is distinguished by red and coarse hair, a florid complexion and grayish-blue eyes—in this variety the skin, when excluded from the light, is very fair. In both of these varieties the skin is coarse on the breast, arms and legs of the men, and covered with coarse hair.

With this temperament, without distinction of variety, the forehead recedes and contracts laterally as it rises above the temples, and the brain in general is developed obliquely upwardly, and backwardly, the flesh is very firm, and the locomotion is quick and supple, but not graceful. The nose, usually, is above the average size, and very frequently aqueline in form, but occasionally it has the Roman form, and occasionally the Grecian; this last form is the most common to the females. The superior lip is more full or prominent than the inferior.

As I have stated in connection with the sanguine, so of this, there are in our species four dark complexioned temperaments. The bilious forms a compatible marriage with the opposite sex of either of the other three; but

when both of the parties to a marriage are bilious, sterility is the consequence; and as an illustration of this law I may cite Gen. Jackson and his wife, who, respectively, were bilious and without children.

III.—The Lymphatic Temperament.

This temperament has no distinguishing complexion, it may be either fair or dark, some physiologists to the contrary notwithstanding. It is distinguished, however, by a large and globular head, fine hair, an exceedingly full habit of the body, which is soft or flabby, and so amorphous as to defy description, but imagine the skin of a short and corpulent man filled with water, and you will have a pretty fair idea of the external appearance of this constitution when fully developed. The cheeks are large and ponderous, the eyes have a sleepy appearance, the nose is pugged, the lips are thick, and the locomotive movements are slow and waddling.

Holland and China are the countries in which this temperament obtains its highest development. I think it very probable that no one of my readers will ever see in this country a fully developed individual of this class. This temperament, in combination with those of which I have treated, the sanguine and the bilious, forms combinations which are both various and numerous, and withal useful and reputable; although the lymphatic temperament is thought to be a disgusting sack of humors. Indeed I doubt whether the highest order of human genius can obtain without some participation of this constitution. This temperament, though never brilliant, will compare, favorably, with any other for a safe and practical judgment.

This temperament is very rarely, if ever, found highly developed, except in countries having a humid atmosphere.

IV.—The Encephalic Temperament.

This temperament, like the preceding, has no distinguishing complexion; it is, however, distinguished by

a relatively large cerebrum and a small cerebellum, and consequently a feeble and tardy manifestation of all the vital functions. The thorax and abdomen are small and contracted, the muscles slender, stringy and flaccid, the locomotion faltering and dragging. The person is very spare, the neck long, the forehead is massive and superiorly expanded, the cheek bones sharp and prominent, the cheeks sunken and thin, the nose small, slender and recurved, the lips thin, the chin pointed, and the countenance is thoughtful or even gloomy. Representatives of this class are but rarely to be seen in any country. But in combination with the other temperaments very frequently obtains. People of this class feel and think profoundly but never powerfully.

Though this temperament may not be as disgusting as the lymphatic, yet it is as powerless, and in the abstract of as little use. People of this class are so liable to monomania that they are probably very rarely entirely exempt from it.

This temperament I discovered in 1852. The fourth temperament of the ancient physiologists, and denominated the Melancholic, is thought by modern physiologists to be a pathological rather than a physiological condition, and therefore discarded it. The condition presented by Professor Gregory, and denominated the nervous, is also thought to be pathological; at all events, it is not an elementary condition, but one that is not in all of the temperaments.

I am very confident that I have given this subject more observation and study than any other individual ever did, or even all others; and thus have become convinced that humanity is distinguished by four *sui generis* peculiarities of constitution, and that they are those I have described.

The discovery of the fact that certain constitutional conditions or temperaments are so incompatible as to render marriage very frequently sterile or productive of imbecile or scrofulous children, must render a knowledge of

the temperaments of paramount importance. If there be any who doubt that such discovery has been made, they have but to exercise a little observation to become convinced that the fact not only exists, but is most distinctively prevalent in all parts of our country. The signs of the times indicate that the time is not distant when public opinion will not tolerate professional ignorance of this subject. Medical students, therefore, who possess a laudable ambition and a prudent foresight, will include this subject in their professional studies, and be prepared to respond to the demands of the public.

The Origin of Human Temperaments.

This inquiry is not only interesting, but useful, inasmuch as married parties who are incompatible may frequently effect a compatibility by knowing how to do it, and those who are compatible may keep themselves so.

The four preceding or elementary temperaments do not probably comprise more than two per cent. of the population of any civilized country; the remaining ninety-eight per cent. consist of combinations of the four elementary ones. If, therefore, we understand the origin of these four physiological conditions of humanity then of course we shall understand the origin of their combinations, for it is assumed that no respectably intelligent person is entirely ignorant of the laws of reproduction.

For the sake of convenience and simplification in treating this subject, I divide the four elementary temperaments into two classes, which I respectively denominate the *vital* and the *non-vital*. The sanguine and the bilious temperaments constitute the first or vital class, and is so denominated because observation has forced upon me the conviction that without the agency of one or the other of them, there can be no transmission of life—no reproduction. The Lymphatic and the Encephalic temperaments constitute the non-vital class, and is so denominated because as frequently as I have found the parties to a mar-

riage to be, respectively, as much as two-thirds or more of these temperaments, as frequently have I found three-fourths of their children to have been dead-born, and the other fourth to have died within the first year of their existence respectively.

As I have found no cause to be productive of the sanguine or the bilious constitution, and as there can be no reproduction without the agency of one or the other of them, so I infer that they were originally founded in the constitution of humanity, and therefore primitive. But I am far from being sure that both of them had their origin in the same species of the race which I regard as a genus. The two constitutions are alike in but one respect, and that is, they are equally reproductive; they are unlike in their therapeutic relations, they are mentally unlike, and they are unlike in terrestrial relations. The sanguine being especially adapted to high latitudes and the bilious to the low. These facts strongly incline me to the opinion, that the sanguine and bilious temperaments had their origin in two different, but allied species of the genus homo. I am disposed to think that the sanguine condition had its origin with a truly white species, and which probably originated in Northern Asia, and that the bilious condition had probably its origin in or with the Iberian species, which, in the opinion of ethnologists, had its origin in Africa, and that the two species emigrating to more temperate climes, met and amalgamated, and that the present population of Europe and the United States descended from this amalgamation, and so thorough and extensive was this amalgamation that the resulting population had a medium adaptation, and, therefore, less adapted to either extreme of latitude.

Germany, perhaps more than any other country, furnishes an excess of the white species, and Spain of the dark. In Spain, more certainly, perhaps, than any where else, can still be found descendants of the Iberian species.

Physiologists have even regarded the lymphatic tem-

perament as being both elementary and primitive, but I can concede neither, for it is compound and secondary, having originated in causes which are incidental to civilization.

I assume, because universally conceded, that wealth results from civilization, and it is well known that ease, idleness and luxury result from wealth or a prosperous condition of society, and that these generate lymph in a vital constitution, but much more rapidly in a humid than an arid atmosphere. I have been an unceasing observer in this relation, for thirty-five years, and have known both sanguine and bilious men, who had given themselves up to ease, idleness, and their attendant indulgences, become, in a few years, very obviously, lymphatic. I do not mean an obese condition, but a lymphatic one, for to me the difference is unmistakable, but hitherto unobserved. With the obese condition the head does not change in either form or size; but with the lymphatic, as lymph accumulates in the brain, the skull loses its angularity and becomes more globular, and the cause of this difference is easily explained. The brain, equally with the body, becomes lymphatic or watery, but it does not with the body become obese. This lymphatic condition is very rapidly acquired by some people, particularly those on whom was entailed a lymphatic diathesis. A diathesis to this condition is entailable, and hence, when a people are prosperous, or in easy circumstances, this condition is not only produced, but rapidly multiplied.

With reference to mental activity and enterprise generally, the lymphatic condition is greatly preferable to the obese; the latter obtuses every faculty. Those physiologists err who attribute the supineness of some European potentates to their lymph; it is attributable to their obesity. Fat people are feeders, but the lymphatic are drinkers, and those who have a lymphatic diathesis, and desire to avoid a lymphatic repletion of the body, must reduce their fluid ingesta.

Some physiologist, name not remembered, has represented the Esquimaux as a lymphatic people; but this is an error of such magnitude that I am ashamed of it. A lymphatic man could not live in that country, he would freeze to death about as readily as any other sack of water. The Esquimaux are a fat people, and fat is an essential condition of animal life in that latitude. I have five crania of that people, and they are all very similar in form and size, and as angular as the crania of other savage people, and withal have the bilious form. If a lymphatic man were to emigrate to that country, and could obtain food enough, he would, as is common with the bear, have his lymph replaced by fat in six months, with the exception of the brain. Nevertheless, the obese and lymphatic conditions are but modifications of the same fundamental condition, as I infer from the fact that in marriage they may replace each other; fat replaces the lymph of the bear every year.

Finally, the lymphatic condition is not only secondary but adjunctive—a mere addition of lymph to a primitive condition—the sanguine or the bilious. It should be remembered that the mere presence of lymph does not constitute the lymphatic temperament—the lymphatic repletion must be so great as to obliterate all the indices of the fundamental condition, except the complexion. If the lymphatic repletion be on the bilious element or condition, the complexion will be dark; but if on the sanguine, fair. As the lymphatic repletion imparts no color, it is now explained why this temperament has no distinguishing complexion, and why individual cases may be either fair or dark.

The encephalic temperament, like the lymphatic, results from influences which are also incidental to civilization. Care, responsibility and mental activity, generally develop the cerebrum or larger brain, and sedentary habits or inactivity of the muscular or respiratory systems reduce the cerebellum or smaller brain, and thus the encephalic

condition results. I have observed sanguine and bilious men having responsible and sedentary positions in banking and commercial houses, to become considerably encephalic in, comparatively, a few years. I have never found this condition in primitive peoples, as our Indians. The necessity which their condition imposes on them for muscular and respiratory action, as hunters, maintains a high endowment of the cerebellum; and their relations to society and property are too few and feeble to develop the cerebrum. Hence, that life which distinguishes the wild horse, the buffalo and the lion, about equally distinguishes man in his primitive condition. Furthermore, the encephalic temperament does not obtain with our frontier population except by emigration and entail.

As a mere increase of one portion of the brain to the neglect of another can produce no modification of the complexion, the fact is explained why this temperament has no diagnostic complexion. Nevertheless, it is sometimes fair and sometimes dark, but this circumstance is referable to the fundamental element which is sometimes sanguine and sometimes bilious.

As the lymphatic and encephalic temperaments are founded on either the sanguine or the bilious, it follows that neither of them is an exclusively elementary condition. But as the lymphatic has always been so esteemed, and as the encephalic is equally entitled to the same estimation, and as both of them, in their respective combinations with other conditions, obey the elementary law, and as this estimation of them promotes simplicity in their application, I deem it best to nominally regard them as elementary conditions; for, at most, it matters but little how they are nominated, provided we understand them. But for the vital condition that underlies these temperaments respectively, married parties of them could not procreate; and as it is, their procreations are invariably dead-born, imbecile, or die in infancy of scrofulous forms of disease.

The vital element on which these conditions are respectively founded is but feebly developed in them; hence the lymphatic and encephalic constitutions are greatly powerless both mentally and physically, and yet they greatly promote civilization by combining with the vital temperaments, provided they do not enter too extensively into the compounds.

Although I have no authority for the preceding views on origin of the temperaments, yet I am confident that they correctly represent nature, and, therefore, I respectfully submit them to the observation of my readers.

The Compound Temperaments.

To the extent of my information, I am the first and only pioneer in this department of the subject. Some physiologists have thought it to be a very useless waste of time and labor to treat of those constitutional conditions which result from the combination of two or more of the preceding or elementary temperaments. The interest the subject promised led me into this investigation thirty-five years ago. I do not remember that I promised myself any ultimate advantage from the investigation, nor could I anticipate any that would be likely to result from it. But if I have not been remunerated for the toil and time thus expended, my species has by the discovery of the hitherto unsuspected truth, that the most physiological and healthy parties of our respective sexes are, very frequently, in the marriage relation, so physiologically incompatible as to be sterile, or entail on their progeny mental imbecility or a scrofulous diathesis. I do not regard this as the greatest discovery ever made in human physiology, but it is confessedly the most important.

In the mass of the population of any country, those having an elementary temperament are exceedingly few—so few as not to produce one per cent. of the incompatible marriages. Hence, as ninety-nine per centum of those marriages which are productive of sterility, imbecility and

scrofulous constitutions, result from the compound temperaments, it follows that an effort, at least, should be made to distinguish the compound temperaments. Indeed, the happiness of society, the strength and prosperity of States, and the perpetuity of the species demand it. In this relation I can assure my readers that the subject involves no more difficulty than is attached to the elementary temperaments. It is true that an attempt to treat of every conceivable combination of the temperaments, would be a fruitless task, but the science of physiological marriage makes no such demand; it only demands that we shall be able to distinguish the binary, ternary, and quarternary combinations, and to this extent the subject is as the descriptive department of any portion of natural history. But our old and fossilized medical minds think the subject to be so occult as to render it about impossible for any one to diagnose the compound temperaments even to the above extent, and hence their astonishment at seeing me do it by an inspection of denuded crania.

THE BINARILY COMPOUND TEMPERAMENTS.—These are those which consist of a union in the same constitution of two of the elementary temperaments.

5. THE SANGUINELY BILIOUS TEMPERAMENT.—This temperament is of equal value with the sanguine or the bilious with reference to the reproductive function of the species, and may therefore be compatibly substituted for either of them. *A priori*, it would be reasonable to infer that this compound might and would more likely than otherwise result from a sanguine and a bilious progenitor; but this, I think, is never the fact, but if it ever be, the progeny never lives to be old enough to evidence the fact; the cause, no doubt, is this: the sanguine and bilious temperaments are incompatible in marriage. This temperament results, therefore, from other progenitors between whom the two elements obtain compatibly.

FIG. 13.



ALFRED THE GREAT.

This temperament is distinguished by brown hair, darkly grayish blue eyes, with a fair complexion when excluded from the light, but under exposure to the light it acquires a tan color. As this condition is the most dense known to the species, the head consequently is a little less than the average. The flesh, also, is more dense in this than in any other, and therefore less developed. In proportion to weight, therefore, this is the most muscular constitution known to the species. In altitude this temperament ranges between five feet eight inches and six feet. In this class the forehead recedes a little, but less usually than in either of its constituent elements, and like them it becomes more narrow as it rises. The nose is straight on the dorsum, but if either of the constituent elements predominate the nose becomes larger and elevated on the

dorsum, or aquiline, the lips are usually less than the average in thickness.

The bilious element frequently so predominates as to render the hair of crow blackness and the eyes of a deep blue. On the other hand the sanguine element frequently so predominates as to bring the hair to a very light brown. When the bilious element is of the xanthous variety, the above indices are modified, the degree of darkness of the hair will be replaced by a corresponding degree of redness, the eyes will be brighter and the complexion more florid.

The respective components of this temperament unite in all conceivable proportions respectively, and yet all the combinations of those constituents are, equivalent with reference to marriage.

NOTE.--With reference to the science of marriage, and it is my present object, it is necessary to treat of the temperaments as far as relates to their visible appearance. But if I were treating of them with reference to medical practice, then it would be requisite to indicate their dynamic influence, respectively, over the constitution. And if I were treating the subject with reference to mental philosophy it would be requisite to indicate their dynamic influence respectively, over the mental manifestations. In this treatise, therefore, I will confine my pen to the first object, not only because it is of the most importance, but because it is at present my only purpose, and for more than this I have neither the time nor the inclination at present.

6. THE SANGUINE-LYMPHATIC TEMPERAMENT.—This temperament is distinguished by light hair, fair skin and lightly grayish blue eyes, the temples are broad and full, the head is considerably globular, less than the average in its occipito-frontal diameter and greater in its lateral. The person is broad and full, the flesh rather soft, the forehead is broad but not particularly elevated, the nose has less than the average length, is straight on the dor-

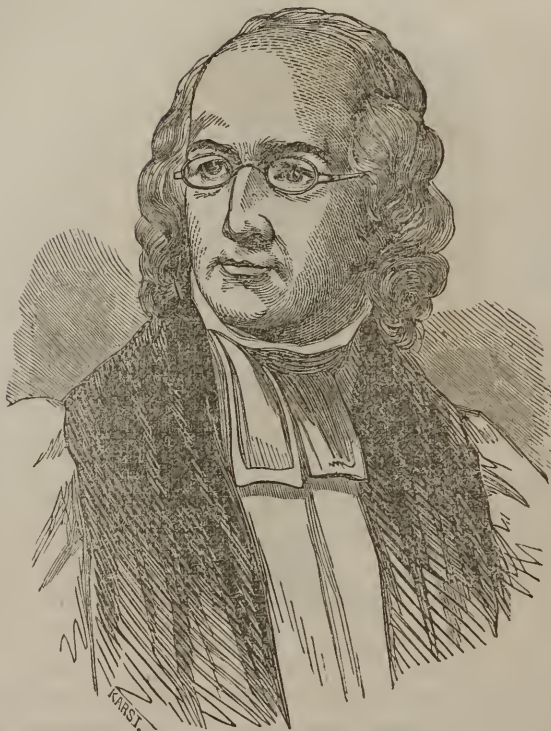
FIG. 14.



DANIEL DEFOE.

sum, but is occasionally a little aquiline, and occasionally a little pugged, or recurved. The lips are of more than usual thickness. The great fairness and translucent delicacy of the skin of the young women of this class render them particularly handsome. I have not seen a well-defined representative of this temperament in the western or south-western country, but they numerously obtain in Maryland and Pennsylvania. It is proper to add that the forehead has more breadth at the brow or from temple to temple than it has at two-thirds of its elevation. Representatives of this class never, perhaps, reach an altitude of six feet; an altitude of five feet seven or eight inches is usual with the men. I have seen them five feet ten inches. The locomotion of this class is more or less waddling.

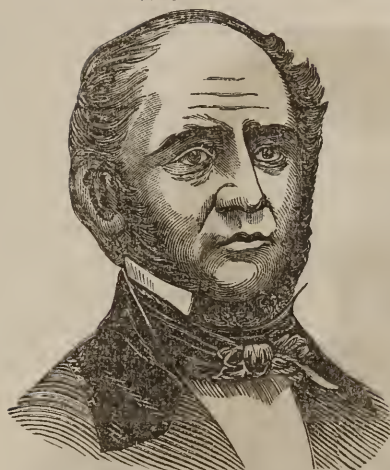
FIG. 15.



BISHOP DOANE.

7. THE SANGUINELY-ENCEPHALIC TEMPERAMENT.—This temperament is distinguished by light and rather fine hair, lightly grayish blue eyes and fair skin. The person is spare, the muscles are more or less flaccid, the altitude of the person is usually four feet eight or ten inches, but occasionally it reaches six feet two or three inches. The head is of average size and most generally flattened on the sides. The forehead is more than usually vertical, and has also more than usual elevation, and at the elevation of about two-thirds of its altitude it is more full and broad than at the temples. Of all the compound temperaments this is probably the most feeble, physically.

FIG. 16.



THOMAS NELSON.

8. THE BILIOUSLY-LYMPHATIC TEMPERAMENT.—This temperament is usually distinguished by brown and rather fine hair, brown eyes and a rather dark complexion. The habit of the body is full, the flesh considerably soft. The head is considerably globular, the nose is usually straight on the dorsum, but oc-

asionally it is pugged, recurved or aquiline, the lips are more than of average thickness. In health the complexion is enriched by a glow of the rose. Many of the brunette beauties of southern climes are of this temperament. The forehead is broad at the temples but becomes less so as it ascends. When the bilious element is of the xanthous variety, instead of the brown color of the hair, the color will be yellow or some shade of red, and the complexion florid and the eyes a light gray. As to altitude this class is similar to the sanguine-lymphatic, but I have seen it more than six feet.

9. THE BILIOUSLY-ENCEPHALIC TEMPERAMENT.—This temperament is usually distinguished by brown and rather fine hair, brown eyes and a dark or bilious complexion. The person is spare, the flesh of tolerable firmness, the altitude of the person ranges from five feet eight inches to six feet. The head has usually a little more than average size and usually flattened on the sides with depressed temples. The forehead is elevated and has usually more breadth at two-thirds of altitude than at the temples; that is, it is superiorly expanded and inferiorly contracted. Some of

FIG. 17.



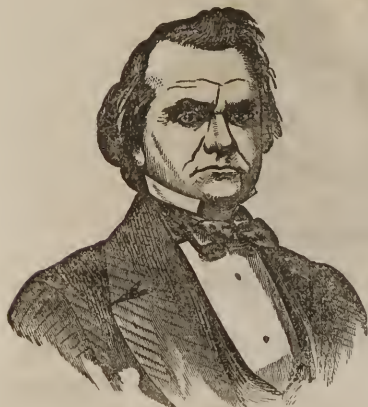
PROFESSOR POWELL.

the brunette beauties of southern climes are also of this constitution. In this class the nose is usually straight on the dorsum, but occasionally it is aquiline, and the lips are of moderate thickness. When the bilious temperament in this compound is of the florid variety the complexion is changed, as with the preceding or bilious-lymphatic temperament.

NOTE.—It may be useful to remark here that the presence of the encephalic temperament, in all of its combinations, is indicated by an expansion of the superior third of the forehead; and in proportion to the extent of its presence, will there be a fullness in the manifestation of the vital functions.

TERNARILY COMPOUND TEMPERAMENTS.—This class comprises four species, and their respective varieties are infinite or as nearly so as the human mind can conceive. These species are respectively compounded of three of the elementary temperaments. I do not deem it necessary to the science of physiological marriage to treat of more than one variety of each species, viz: that variety in which the compounding elements are respectively about equal. To this extent it is indispensable that everybody who aspires to a practical acquaintance with the science of physiological marriage should be familiar with the temperaments.

FIG. 18.



STEPHEN A. DOUGLAS.

10. THE SANGUINE-BILIOUS LYMPHATIC TEMPERAMENT.—This temperament is distinguished by a full habit of the body; the head is, usually, a little above the average size, but more particularly in its inferior or basilar portion, the hair is brown and coarse, the eyes are darkly bluish gray, the skin, where exposed to the light has, to some extent, a tan

color, but otherwise is very fair. The nose is of ample size and occasionally has the Roman form, but most generally it is Roman-pugged. The forehead is broad at the base but gradually becomes more narrow as it rises, the cheeks are ponderous and the lips thick. This species, I think, never produced a beautiful woman, and yet in this species many very fine looking representations of humanity, of both sexes, are to be seen. When the bilious element of this compound is of xanthous variety, the hair is yellowish red or sandy, complexion florid, and the eyes brightly bluish gray, and this is true of all the combina-

FIG. 19.



J G SPURZHEIM, M. D

tions with the bilious when it is of the florid variety, and this fact should be remembered.

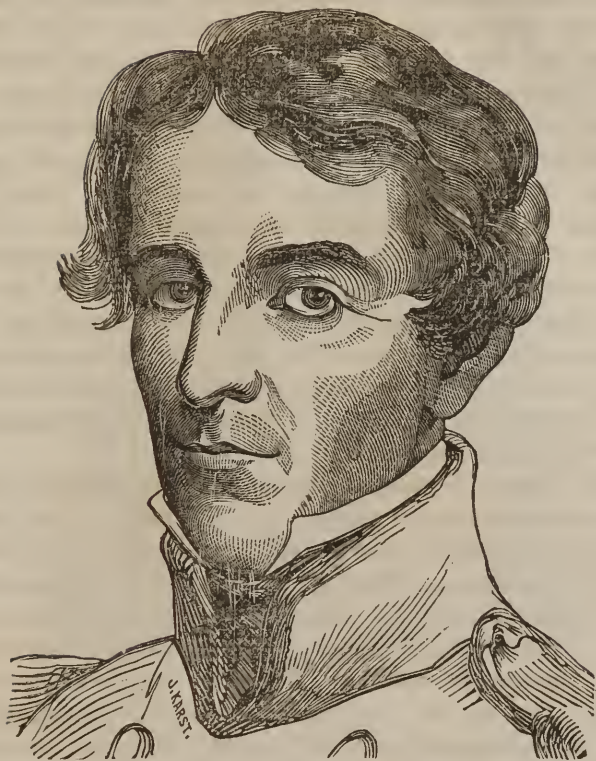
FIG. 20.



JOHN BELL.

11. THE SANGUINE-BILIOUS-ENCEPHALIC TEMPERAMENT.—The complexion of the hair, eyes and skin of this temperament is precisely that of the preceding, and that of both is the same as that of the sanguine-bilious temperament. This temperament can be confounded, only, with the sanguine-bilious, and such a mistake might result in serious mischief;

FIG. 21.



CAPT. INGRAHAM. *

but such an error can happen through great negligence only; they are similar in person and complexion and frequently in their features, but between their foreheads there is a marked difference. With the sanguine-bilious the forehead is much more contracted near the top than at the base, but that of the sanguine-bilious-encephalic is more expanded near the top than at the temples. In this class the muscular system is less dense and enduring. In this temperament the head is of full average size, but less developed inferiorly than superiorly.

12. THE SANGUINE-ENCEPHALO-LYMPHATIC TEMPERAMENT.

This temperament is distinguished by light hair, fair skin, lightly grayish blue eyes, and a full habit of the body. The head has more than an average size and elevation, the forehead is tall and broad, more especially near the top; the nose is of ample size, and usually straight on the dorsum, but occasionally it is aquiline; the lips are more than usually thick. This is not a muscular class, and hence it is not adapted to the rugged pursuits of life. The only temperament for which this might be mistaken by a careless observer, is the sanguine lymphatic; but this mistake would be attended with no material mischief, but such a mistake should not be made, for in the latter the forehead is only about two-thirds as high as in the former, and becomes more narrow as it rises, but in the former it becomes more expanded.

13. BILIOUS ENCEPHALO-LYMPHATIC TEMPERAMENT.—This temperament is distinguished by a full habit of the body, by fine and darkly brown hair, dark brown eyes, and a dark complexion. The head is above the average in size, the forehead is tall and superiorly expanded. The nose is amply developed, straight on the dorsum, a little recurved and pugged, or aquiline. The only temperament with which this can be confounded, is the bilious-lymphatic, but in marriage no mischief would result from the mistake, because in all cases in which either could be a party to a physiological marriage, so would the other; but negligence is the only excuse that can be offered for such an error, because in the latter the forehead is less elevated and less expanded superiorly. Of all the brunette beauties of any country, those of this temperament are the most magnificent or splendid.

[SEE ILLUSTRATION ON OPPOSITE PAGE.]

FIG. 22.



14. QUARTERNARILY COMPOUND TEMPERAMENTS.—This class comprises but one species, but the varieties are innumerable.

15. THE SANGUINE-BILIOUS ENCEPHALO-LYMPHATIC TEMPERAMENT.—The indices of this temperament are those of the sanguine-bilious lymphatic temperament, with the exception of the forehead; and hence it is the only one with which this can be confounded. Both have the same complexion of the hair, eyes and skin, and the same habit of the body; and in alliances in which either would constitute a physiological marriage, so would the other—and yet between the two there is a marked difference. The sanguine-bilious lymphatic excels in muscular strength and endurance. In this class the forehead is superiorly

contracted; but with the sanguine-bilious-encephalo-lymphatic, the forehead is superiorly expanded. This temperament is, therefore, more highly endowed with mind than the other. There is another marked difference. This is occasionally productive of a beautiful woman, and, in both sexes, the highest order of human capacity; and, as illustrations of this fact, I may cite the first and third Napoleons, and also the beautiful and gifted Miss Harriet E. Hosmer.

THE SCIENCE OF PHYSIOLOGICAL MARRIAGE.

The human temperaments are the elements of this science, and having treated of them to the extent demanded by their relation to this subject, I proceed to their application.

I divide the elementary temperaments into two classes, the *vital* and the *non-vital*; the former embraces the sanguine and the bilious temperaments, and is so denominated because observation has forced upon me the conviction that without the agency of one or the other of them, there can be no transmission of life. The latter embraces the lymphatic and the encephalic temperaments; and is so denominated, because, as frequently as I have observed the respective parties to a marriage to be as much as two-thirds of these temperaments, so frequently were three-fourths of their children dead-born, and the other fourth did not, respectively, live one year; and this I hold to be a law in this relation.

This science resulted from a discovery which I made in 1844, namely, constitutional similitude between the respective sexes of our species renders them incompatible in relation to the procreative function, causing sterility, or an entailment of a scrofulous diathesis on their children, imbecility, blindness, deafness, or some other abnormal condition.

Regarding the reproductive function as the most important incidental to the race, my reflections on this dis-

covery, and the fact that the evils above-named do obtain very frequently from the constitutional similitude of the sexes, forced upon me the inference that the discovery of the physiological laws of marriage and their indices, would constitute the most important discovery ever announced to man, because it involves not only the perpetuity of the human species, but all the human capacities for either usefulness or the enjoyment of life.

The fundamental fact of this science, the one from which it resulted, I discovered in two days by a methodical course of observation, thus: In 1844, I was traveling in the State of Mississippi, and met with a married couple who were as physiologically sound and healthy as any couple I ever saw; they were very comfortable livers, and in a very healthy district of country. They had six children, of which three had died of scrofulous forms of disease, and the remaining three were fated to die in the same way in a few months.

The physician of this family, who had known them for many years, could form no conception of the cause of the scrofula of their children; there was no consanguinity between them, their respective progenitors were yet living and in good health, and were very confident that scrofula in no form had ever been an heir loom in their respective ancestors. Finding no cause for the scrofula of these children, I was forced to the suspicion that the remote cause was some constitutional peculiarity of the parents; and if it were, I thought it might be discovered by a sufficiently extensive course of observation upon parents and children, and I resolved to make the discovery if possible.

As a preparation for such an effort, I may remark, that at this time I was, probably, more practically familiar with the human temperaments than any other physician is or ever was. The temperament of these parents was, respectively, sanguine bilious-lymphatic. I made a memorandum of this family. My observations were confined to

those families on whom I called for the accommodations incidental to travel. I took them as they came; the second was at my dinner hour; the parties were respectively bilious encephalic, sound and healthy, had three children, one was imbecile, the other two scrofulous; the parties were not consanguine. The third family I saw in the evening, when halting for the night. The husband was sanguine bilious, the wife bilious lymphatic. They were sound and healthy, had seven children, and all of them had a sound and viable appearance.

The fourth family I saw the next morning at breakfast. These parties were, respectively, sanguine encephalic and healthy; had had seven children, but all of them died in infancy, of scrofulous forms of disease.

The fifth family I saw when I halted for dinner. The husband was bilious and the wife was sanguine bilious lymphatic. Both were healthy, and had three promising children, and had lost none.

The sixth I observed when I halted for the night. The host was sanguine bilious lymphatic, and the hostess was sanguine bilious encephalic; they had had six children, but all of them died in infancy, of scrofulous forms of disease. When I halted the next morning for breakfast, I observed the seventh family. These parties were, respectively, bilious encephalic, healthy; had been married more than twenty years, but had had no children. I had now made seven observations, and, upon generalizing them, I found that between the first, second, fourth, sixth and seventh parties, respectively, there was a strongly indicated similitude of constitution, and they, respectively, had been progenitally unfortunate. That between the third and fifth parties, respectively, there was a strongly indicated dissimilitude of constitution, and that they had been progenitally very fortunate.

To the extent that seven cases could warrant an inference, it must, of necessity, be that constitutional similitude between the respective sexes renders them incompat-

ible with reference to the reproductive function; and the observation of many hundreds of cases during a period of eighteen years, has thoroughly sustained this inference. And although this fundamental principle was discovered in forty-eight hours after I resolved to discover the remote cause of the scrofulous diathesis; yet it has required of me eighteen years of observation and study to reduce it to an availably practical science. A practical knowledge of this science, which has cost me eighteen years of toil, can be acquired by any intelligent lady or gentleman in less than a month.

The fundamental principle of this science appears to be founded in an instinct of humanity, which is made manifest by the fact that when people seek a matrimonial alliance, they prefer the complement of themselves respectively—at least a contrast. This science does not oppose our instincts, but guides them. The laws of this science are few and simple.

LAW I. When the constitutional similitude of the respective sexes is such that a qualified observer can not detect an appreciable difference, sterility will be the result of their marriage. *Illustration:* Washington and his wife were, respectively, sanguine, and it is known that sterility was the result. Between General Jackson and his wife there was a nominal difference of constitution; he was bilious sanguine, and she was bilious: nevertheless they were physically the same, both being exclusively vital, and it is known that sterility was the result. The first Napoleon and Josephine were, in person, greatly different, and in constitution they were nominally as different, and yet there was no physiological difference. He was sanguine encephalo-bilious lymphatic, and she was bilious encephalic; consequently they were, respectively,¹ compounded of equal varieties of vital and non-vital conditions, and it is known that sterility was the result of their alliance.

LAW II. When the constitutional similitude of the re-

spective sexes is less than complete, or is appreciably different, progeny will result, but it will be dead-born, imbecile, scrofulous, deaf, blind, or in some otherwise imperfect. *Illustration*: I can furnish three hundred examples of this law, but as they are not historically known, they would be of no value in this relation. I can cite one, however, which is historically known, viz: the first Napoleon and his second wife. Her temperament was bilious encephalo-sanguine, and his temperament I have indicated. There was between them an appreciable difference of constitution, and the result of this difference was one son; but the difference was too small to secure to him a normal viability, for he died of a scrofulous affection of the lungs, at the age of eighteen years. It is most indisputably the fact, that a considerable difference of constitution must obtain between the respective parties to a marriage, to secure to offspring a soundly viable constitution. To discover the least difference consistent with a physiological marriage was indispensable, but before discovering this the conviction became forced upon me that my discovery could not become of general utility without the discovery of a law of universal application. By a great amount of observation and study, I succeeded in discovering the desired law, and it is of easy application, and will universally secure a physiologically legitimate offspring, and the greatest possible happiness to the parents. Those, therefore, who make domestic happiness, and a really useful progeny, conditions of marriage, must observe the following law:

LAW III. One of the parties must be exclusively vital—that is, must be either sanguine, bilious, or sanguine-bilious (the last being a compound of the two former, is also vital), and the other party must as certainly be more or less non-vital, that is, more or less lymphatic or encephalic. All marriages, in contravention of this law, are physiologically incestuous, and the consequences will be vicious in proportion to the delinquency.

LAW IV. The greatest dissimilitude of constitution that can obtain between the sexes, when they are respectively of the same species, is that which obtains between a vital and a non-vital temperament—and this is the most favorable to progeny. But marriages of this character are greatly impracticable in any country. It is a very remarkable fact in the physiology of human procreation, that a high degree of constitutional dissimilitude is about equally unfavorable to progeny. It has been seen that a high degree of similitude entails a scrofulous diathesis, and a high degree of dissimilitude, as when one party is white and the other negro, the progeny is invariably scrofulous, I believe.

The preceding exposition of the science of physiological marriage is amply sufficient to enable any physician to make a practical application of it to all parties of the respective sexes who are even tolerably well defined, provided he be as well informed in relation to the temperaments as any clever Miss of ten summers can become in two hours. I greatly regret to add that my observation for thirty-five years has induced me to believe that not two per cent. of our physicians are so well informed in this relation. I strongly suspect that it is this ignorance and consequent inability to judge of this discovery, that induces my professional brethren generally to denounce it as a vain pretension, and myself as humbug, but more particularly the old fogies. But when has it been otherwise? Did they not similarly treat mesmerism, phrenology, the discovery of the sanguiferous circulation, and vaccination? I can not avoid regarding it as disgraceful, that those who should lead in the investigation of all discoveries embraced by the medical sciences, should very generally continue in the rear till driven forward by public opinion, or the want of bread and butter.

It is exceedingly cheering to find an exception to this professional stupidity or laziness. I have found one, and the fact is an oasis in the barren waste of professional

fogyism. E. H. Dixon, M. D., one of the most accomplished physicians and surgeons known to the profession, as soon as informed of this discovery, subjected it to the test of observation, and not only found it to be true, but, in the January number of the New York Scalpel, for 1859, he presents the evidence of its verity which he had observed, and in conclusion says: "Dr. Powell presents a claim to the gratitude of the race by the announcement of this great discovery, that will be acknowledged long after his memory only will be cherished, as the discoverer of the most important truth ever announced in physiological science."

As this is a discovery about which no properly-constituted member of society, male or female, can feel indifferently, I think it proper to present a few illustrations of its practical applicability:

CASE I. In 1860, a young lady in Wisconsin sent me through the mail a photograph of herself and of her affianced, and solicited my opinion in relation to their physiological compatibility. I informed her that he and she were incompatible, and that if she were unwilling to become the mother of imbecile and serofulous children, not to marry him. She submitted my letter to the perusal of her physician, a foggy. After reading it, he said to her: "Miss, your correspondent is a presumptuous d——d fool, for how can he, better than any one else, tell what a child will be before he sees it?" A wise doctor! She did not adopt my counsel, but married the gentleman, and in due time became a mother, and then informed me that her physician said, "my babe is an idiot; it may be so, I can't judge of it yet, it is too young." The physician could not judge of it even after he saw it, for I am confident that these parties could not produce an idiot. Her babe must have been an imbecile.

CASE II. In 1861, a lady called on me, from a neighboring State, with a daguerreotype of her husband, and requested my opinion of her marriage. I responded, "It

has been unfortunate, for if you have had children, which is barely probable, they were either imbecile, died in infancy of hydrocephalus, or of a scrofulous variety of brain fever." She rejoined, "I have had three children; the first is living, but my physician and the neighbors say that he is an idiot, but you said imbecile; what, if you please, sir, is the difference?" I explained. She rejoined, "Then, sir, he is an imbecile and not an idiot." She resumed, "Have I nothing better to hope for from my marriage than I have had?" I responded, "Nothing, I think, madam, unless you would prefer sterility, of which there is a probability.

CASE III. In 1862, a legal gentleman from the interior of Kentucky called on me with a daguerreotype of his wife, and said, "Professor, I have learned that you have made a great discovery in physiology; that if you see a married couple or their portraits you can tell whether they are fit for progenitors or not; is it true, sir?" I responded, "It is, sir." He answered, "I have always thought it to be reasonable to suppose that humanity possesses the elements of the science of its most essential function, but not having learned through the literature of the day that such a science had ever been imagined as being possible, and much less as having been discovered and developed into a practical science, consequently I was not prepared to believe the information I had of you; and therefore consulted my physicians about it; they thought your pretensions to be an impossibility and you a humbug. But, sir, as I had business here I concluded to bring my wife's daguerreotype with me and try you, provided you permit such trials. I rejoined, "I do, sir, and am pleased to have them, because they furnish me additional facts." He rejoined, "Well, sir, are my wife and I fit for progenitors?" I responded, "As you and she have the indices of sound constitutions and good health, it is my opinion that you are, in the abstract, favorably constituted for progenitors, but in relation to each other you are not." He

rejoined, "Why not?" I answered, "Because your constitutions are incompatible, which causes a scrofulous constitution to be entailed on your children, a majority of which will probably die of scrofulous forms of disease before attaining the age of puberty, respectively, and the others will not, I think, live to the age of thirty-five years, respectively, but will die of consumption."

He continued, "I am satisfied, sir, that you are a master of the most important science ever addressed to the consideration of man. My wife, sir, has brought me sixteen children, and nine of them died of scrofulous diseases, under the age of puberty. Of my living children the oldest is in his thirtieth year, and his physician informs me that he is in the forming stage of consumption, and hence, there is a strong probability that your opinion will be fully verified." He continued, "My physicians insist that scrofula must at some time have been in the family of either my wife or myself, but I have never believed it; what, if you please, is your opinion?" I responded, "Your physicians may possibly have been correct, sir, but I can not conceive any necessity for it, because the physiological incompatibility that obtains between you and your wife satisfactorily explains the loss of your children by scrofula." He rejoined, "As you know nothing of my family in any relation, beyond what you can infer from seeing me and the daguerreotype of my wife, and yet have manifested a clear understanding of the consequences of our marriage, I can not doubt that your opinion is entirely worthy of my confidence. Do physicians generally understand this subject?" I responded, "They do not, nor is there any probability that they will pay any attention to it till I have been dead half a century. They must, at least, be permitted to denounce me as a humbug while I live, and the application of my discovery an impossibility." He resumed, "Suppose I had consulted you before I married, could you have given me the information you have given me?" I answered, "The same, sir."

He continued, "You have certainly made an incalculably important discovery, and as the people have a right to require of their physicians a knowledge of this subject, and as I am a member of the Legislature of this State, I will have the attention of our physicians directed to this subject. If their professional pride will not urge them to do it, the reduction of their bread and butter will—prevent them from collecting their fees by law."

CASE IV. A few months since, a married couple called on me; they appeared as rough and hardy as pig-iron, and desired my opinion as to what their "luck" in regard to children had been? I answered, "If you have had children, three-fourths of them were born dead, and the others lived but a few months, at most." The wife rejoined, "I have had seven children, and five of them were dead-born and the other two lived but a little while. These parties were sent to try me by an old foggy who knew them, and thought it impossible for me to indicate the consequences of their marriage. He was probably silly enough to suppose that I operated by guessing."

NOTE.—The parties to case 1 were respectively bilious-encephalic, case 2 were the same, case 3 one was bilious-lymphatic, and the other sanguine bilious-lymphatic, case 4 were respectively bilious encephalo-lymphatic.

Professional ignorance of the remote cause of the scrofulous diathesis caused it to be denominated the "opprobrium medicorum." Fortunately this epithet can no longer be cast at the profession, for I have discovered it—it is physiologically incompatible marriage. It did not operate extensively in our western country till within the preceding forty years, but the want of space dose not permit me to furnish an explanation of this fact, for such it is, I doubt not. If the same cause shall continue to operate for another century as it did through the latter half of the preceding, our country will be as scrofulous as Holland. A scrofulous diathesis obtains now in at least five-sevenths of American society, and is increasing, and

the time is not remote when it will be almost impossible for any one to contract a physiological marriage.

Some of our States have by law prohibited the marriage of cousins. The least that can be said of this law is, it is founded in ignorance, for it is not known that consanguinity renders the sexes incompatible. They are occasionally incompatible, just as other parties are, and for the same cause. My observation teaches that when cousins are physiologically compatible their children are as promising as those of other physiological marriages.

VITAL TENACITY.

It has long been observed that some persons who seemingly had but little vitality, and of feeble appearance, would resist attacks of disease, and recover when there seemed but little hope, and live until they were worn out by age. Whilst others who seemed strong and healthy, and gave every promise of long life, would succumb to slight attacks of disease, having apparently no power to rally when assailed. I have been deceived in this way many times. Persons who it seemed to me could not possibly recover, and who had been given up by physicians and friends, would live, despite all adverse circumstances, and finally get well; whilst others who did not present any alarming symptoms, would die in spite of all that could be done for them.

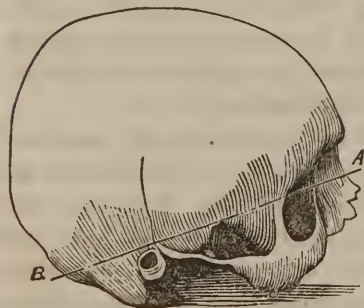
We find some families remarkable for their vital tenacity and longevity, whilst others seemingly as healthy, die young. This is especially noticeable in children. In some families they will live in spite of the most adverse circumstances and severe diseases, whilst in others it is with the greatest difficulty they are raised, or they die in infancy. Physiologists have never been able to account for this, and up to a recent period, we have had no means of determining between these classes. Now, however, thanks to Dr. Powell's investigations, we are enabled to designate those of great and those of feeble vital tenacity.

He came to the conclusion from long continued observation that the size of the base of the brain was the index of vital tenacity; that when this was large the persons have great power to resist disease; and when small, that they would readily succumb to but slight affections. To determine this, we draw a line from the prominence of the *frontal* bone at the outer angle of the eye to the prominence at the posterior of the head on the *occipital* bone, as shown in the accompanying cuts. The space between this and the opening into the ear, (external auditory meatus,) determines the size of the base of the brain, and the amount of vital tenacity.

FIG. 23.



FIG. 24.



When this space measures three-fourths of an inch and upward, the person has great vital tenacity, and will resist and recover from diseases, and live to an advanced age. Fig. 23 is the skull of a criminal named Loper, who was hung for murder. The line from A to B marks the exact point of measurement, and shows a very great vital tenacity. Fig. 24 represents the skull of a man who was about as old as the former, but who died of consumption. It will be observed that the line runs very

close to the opening of the ear; it measures but one-sixteenth of an inch, while in the former case it was a full inch.

The first marked example of the truth of this discovery that came under my notice, was the case of my own child. She had been suffering from summer complaint for two months, and became so reduced in flesh and strength that no person supposed it possible she could live through the summer. I mentioned her case to Dr. Powell, and he desired that I should make the measurement and give him the result. I did so, telling him that there was full three-fourths of an inch between the line and the auditory meatus. He immediately remarked that I need not have the slightest fears for the child, as she would not only recover from this sickness, but would, in all probability, out-live either of her parents. She did recover, and is a strong, hearty girl, nine years of age. Since then I have applied the test frequently, and have not known it to fail.

A very marked example occurred in our College while Dr. Powell was lecturing to the classes. A healthy, vigorous young man called on the Doctor for his opinion in this respect. He advised him to live industriously and temperately in all respects, and to avoid unnecessary exposure at all seasons, for under no circumstances would he probably live to be an old man. A few days afterward his seat was vacant in the lecture room, and he was reported slightly ill—nothing serious—but in nine days he was dead. In another case he gave the same opinion. In a short time the person had an attack of measles, recovered, had a relapse, and died suddenly.

If this measurement proves reliable in all cases, as I doubt not it will, it will be of very great advantage, not only to the physician, but to the people. It is true, there are but few who would wish to know that their days were but few, but it would cause such persons to take better care of their health, and give them time to set their house in order, while yet enjoying health.

ORGANS OF SPECIAL SENSE.

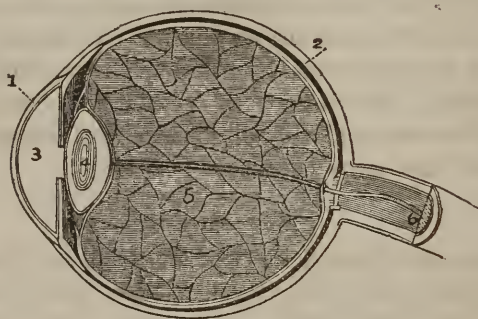
We are brought into relation with the outer world, chiefly, by means of the organs of special sense and general sensation. Deprived of these, man would be entirely shut out from the universe; his only functions being those of vegetation. The wisdom of the Creator, so manifest to the observant in all the works of nature, is especially displayed in the adaptation of these organs to the ends in view, and whilst we regard them as among the most perfect works of the Creator, we can not but admire the simplicity of the structures by which such wonderful results are obtained. The organs of special sense are, the eye, the ear, the nose, and the tongue; general sensation is a function of the entire cutaneous envelope.

The Eye.

The eyes are situated in two bony cavities called orbits, on each side of the nose; these cavities being filled principally by fatty tissue which forms a bed for the eyes. Six muscles pass from the posterior part of the orbit, and its borders to be inserted into the globe of the eye, and are so arranged as to move it in all directions, and thus give a very wide range to vision. The eyes are protected in front by the two lids, formed of a plate of cartilage covered by the skin externally, and a mucous membrane internally. They are still further protected against substances falling from the forehead by the eye-brows, and against all extraneous matter by the eye-lashes. The anterior surface of the eye, the orbit and the under surface of the lids, are invested by a delicate mucous membrane called the conjunctiva. This is kept constantly moist by the secretion of tears, which are furnished by the lachrymal gland situated at the upper and outer part of the orbit. The secretion of this gland is poured out through several minute ducts which open through the outer part of the upper eyelid;

the tears pass across the eye between it and the lid, to the internal junction of the lids, where they are received by two small canals, and conveyed to the lachrymal sac, which is just beneath the internal extremity of the lower lid, and from thence by the nasal duct to the nose. The tears are prevented from running over the eyelids by an oily secretion furnished by small glands along their edge.

FIG. 25



SECTION OF THE EYE.

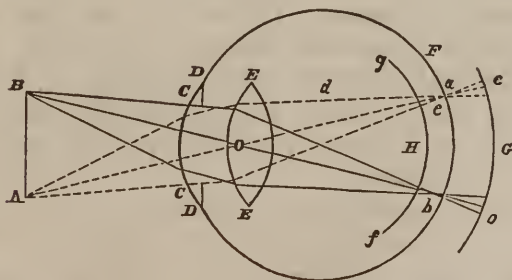
- 1, Cornea. 2, Sclerotic Coat. 3, Aqueous Humor. 4, Crystalline Lens.
5, Vitreous Humor. 6, Optic Nerve.

If we examine the eyeball removed from the orbit, of which Fig. 25 is a section, we will find that it is nearly spherical in form, consisting of an anterior third, clear and transparent, and a posterior two-thirds, white and opaque. The first is called the *cornea*, the second the *sclerotic coat*—and these form the first investment, or tunic of the eye, of which there are three. If, now, we open the eye, we will find a second coat, which only invests its posterior two-thirds. This coat is black, and is intended to absorb such rays of light as pass through the retina. The third coat is in immediate contact with this, and is formed by an expansion of the optic nerve, which pierces the eyeball behind. Passing across the eye, at the point

of junction between the cornea and sclerotica, and dividing it into two parts, is the iris, which has an opening in its center called the pupil, which admits light to the internal parts of the eye. The iris is partly composed of muscular fibers; hence the pupil dilates and contracts, to admit more or less light, as occasion requires. The central parts of the eye are filled with three humors—the aqueous humor, crystalline lens, and vitreous humor. The first is water, situated in the anterior part of the eye, covered by the cornea; the second is a double convex body, of considerable tenacity, situated immediately behind the pupil; and the third is a fatty-like transparent substance that fills the posterior part of the eye.

PHENOMENA OF VISION.—“The essential constituents of the optical apparatus of the eye may thus be enumerated: A nervous expansion, to receive and transmit to the brain the impression of light; certain refracting media for the purpose of so disposing of the rays of light traversing them as to throw a correct image of an external body on the retina; and a contractile diaphragm with a central aperture for regulating the quantity of light admitted to the eye.

FIG. 26.



“With the help of the subjoined diagram (Fig. 26), representing a vertical section of the eye from before, backwards, the mode in which, by means of the refracting media of the eye, an image of an object of sight is thrown

on the retina, may be rendered intelligible. The rays of the cones of light emitted by the points *A B*, and every other point of an object placed before the eye, are first refracted—that is, are bent toward the axis of the cone, by the cornea *C C*, and the aqueous humor contained between it and the lens. The rays of each cone are again refracted, and bent still more toward its central ray, or axis, to the anterior surface of the lens *E E*; and again as they pass out through its posterior surface into the less dense medium of the vitreous humor. For a lens has the power of refracting, and causing the convergence of the rays of a cone of light, not only on their entrance from a rarer medium into its anterior convex surface, but also at their exit from its posterior convex surface into the rarer medium.

“In this manner the rays of the cones of light issuing from the points *A* and *B*, are again collected to points at *a* and *b*; and, if the retina *F* be situated at *a* and *b*, perfect, though reversed, images of the points *A* and *B*, will be perceived; but if the retina be not at *a* and *b*, but either before or behind that situation—for instance, at *H* or *G*—circular luminous spots, *c* and *f*, or *e* and *o*, instead of points, will be seen; for, at *H* the rays have not yet met, and at *G* they have already intersected each other, and are again diverging. The retina must, therefore, be situated at the proper focal distance from the lens, otherwise a defined image will not be formed; or, in other words, the rays emitted by a given point of the object will not be collected into a corresponding point of focus upon the retina.”—*Kirkes*.

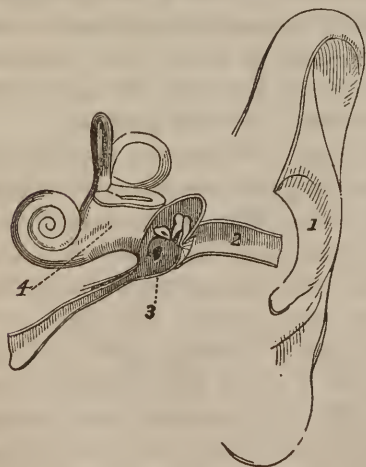
Two deviations from normal vision may be noticed and have to be counteracted by the use of glasses, or artificial refractory media. *Myopia* or short sightedness is caused by anything, as undue convexity of the cornea, which increases the refracting power of the eye, and causes the image to be formed anterior to the object as at *H*; this defect is remedied by the use of concave glasses. *Presby-*

opia, or long sightedness is the reverse, and is caused by the flattening of the cornea, or other causes that would diminish the refracting power of the eye, and cause the image to be formed at a point behind the retina, or *G*; this defect is remedied by the use of convex glasses.

The Ear.

The ear, or organ of hearing, is composed of three parts—the external, middle, and internal ear. The external ear is composed of a frame-work of cartilage attached to the bones of the side of the head, and covered by the skin; and a tube about three-fourths of an inch in length which passes inward. The configuration and position of the ear is such as to collect the waves of sound and transmit them inward. The passage to the middle ear is called the external auditory meatus, and is formed partly of bone and partly of cartilage, covered by the skin which is reflected inward. It is closed internally by a membrane which separates it from the middle ear—the *membrana tympani*.

FIG. 27.



THE EAR.

- 1, The External Ear. 2, Auditory Meatus.
3, Middle Ear. 4, Internal Ear.

The meatus has numerous glands which secrete a peculiar yellowish, bitter, semi-fluid material called cerumen or ear-wax, and which serves to keep the structures soft and protect them from injury. The *middle ear* (drum of the ear,) is a small cavity not more than five-eighths of an inch in its longest diameter, and three-eighths in its smallest. It is lined by mucous membrane, and has but one communication with external parts,

and that is with the throat, through a passage called the eustachian tube. It contains three small bones articulated together, and moved by muscles, which form a communication between the membrana tympani, and the internal ear. The *internal ear* is excavated in solid bone, and consists of a series of cavities as represented in Fig. 27. In these cavities the minute fibrillæ of the auditory nerve are so placed in fluid, that the slightest vibration of air in the external ear, will, through the membrana tympani, and chain of bones, produce sensation of sound.

HEARING.—Sound is produced by the more or less rapid vibration of the particles of matter in which the sound is produced, and is propagated to the ear by the continued undulations of the medium through which it is transmitted, until they strike the membrane, closing the auditory meatus. "Sound is perceived when an impulse of a certain force and suddenness is mechanically given to matter in communication with the nerve of hearing. Such movements as the slow moving of a rod through the air, do not give rise to appreciable sound; hence a certain degree of force and suddenness is required, as instanced in the cracking of a whip. Although air is the usual medium through which sound is conveyed to the ear, any solid, liquid, or aeriform matter suffices for this purpose.

"When the impulse is single, or when one impulse follows another in very slow, irregular succession, the sound perceived is called *noise*; when they reach sixteen in a second, *continued sound* is produced; and when they succeed each other at regular intervals, and reach thirty-two in the same time, a *musical note* results. The pitch of a musical note ascends from grave to sharp, as the number of impulses or vibrations in a given time increases, and consequently as the breadth of the sonorous wave diminishes. Thus, if the lowest note of an octave is made up of thirty-two vibrations, each succeeding note will contain more, until the eighth octave will have twice as many.

"The waves of sound travel at an average rate of

nearly eleven hundred feet per second in air; four times faster through water, and from eight to seventeen times faster in solids. They diverge in all directions, and hence the intensity of a given sound decays in receding from its origin as the square of the distance increases."

The small bones of the ear, with the muscles attached to them, constitute an apparatus for listening. Thus, when the mind is directed to the ear, in the act of listening, these bones are acted on so as to render the membranes closing the outer and inner ears tense, when slight vibrations are conveyed to the nerve of hearing. On the contrary, the ear is protected from injury by intense sounds, as the firing of a cannon, by the power possessed by the individual, of causing a relaxation of those parts.

THE ORGAN OF SMELL.—We have already partially described the cavities of the nose, as a part of the respiratory passages; we have now to examine them as an organ of special sense. These cavities are quite extensive, extending from their anterior openings to the throat, and from the roof of the mouth upward to the superior portion of the external nose. These cavities are lined with mucous membrane; and to this the *olfactory*, or first pair of nerves are distributed in a similar manner to the nerves of the skin. How these nerves appreciate odorous bodies, is more than we are able to tell. They serve a very important purpose, however, in standing guard at the entrance of the air passages to protect the lungs and system against the ingress of any noxious matter.

THE ORGAN OF TASTE.—The tongue is supplied with a special nerve; the *gustatory*, which gives it the power to distinguish between various sapid substances. The mode of action of the substances which excite taste, probably consists in the production of a change in the internal condition of the gustatory nerves, and, according to the differences of these substances, an infinite variety of changes

of condition, and consequently of tastes, may be induced. The matters to be tasted must either be in solution, or be soluble in the moisture covering the tongue; hence insoluble substances are usually tasteless, and produce merely sensations of touch.

THE SENSE OF TOUCH.--The sense of touch is not confined to a special organ, as is the case with the other senses, but is extended to the entire surface of the body. Some parts, however, possess it in a much higher degree than others, as is the case with the skin covering the palms of the hands and fingers, tongue, lips, etc. It results from the minute distribution of the nerves of common sensation in the papillæ of the skin, sensation being most acute where these papillæ are most numerous and most highly developed.

PART II.

HYGIENE.

Health is the greatest of human blessings, and its preservation should therefore engage the attention of every person. It is true that we attach the least value to those things that seem to be ours by right, as life, health and friends, and have less interest in their preservation than we have in the pursuit of objects of far less or no importance. Every person of sane mind values his life above all earthly things, and yet a majority seem to think that so far as death is concerned it is far distant from them. In like manner, though health is an inestimable blessing, it is not regarded until lost, very frequently by open disregard of its plainest laws.

“A sound mind in a sound body,” was a Roman maxim two thousand years ago. Without strength of body, all social, intellectual, and moral virtues lose much of their value. Manners the most refined and dignified, mental qualities cultured and commanding, moral traits worthy of all praise and imitation, if associated with a feeble physical constitution, a frail and sickly body, though of high worth in themselves, are little better than useless as means for promoting the demanded improvement in human society. The will and the heart demand *strong arms* for the execution of their purposes.

No one, observant of human condition, can doubt the idea that feebleness of body is more general at the present day than it was half a century ago. This truth is so frequently affirmed, and so seldom disputed, that it de-

mands little of proof or argument in its support. And to such an extent has physical deterioration progressed, as justly to alarm every thoughtful mind, every philanthropic spirit. Few fathers, at the present day, deem their sons able to perform the labor and endure the hardships which they themselves performed and experienced thirty years ago. And scarce a mother can be found who does not know that her daughters are less strong and vigorous than she was in the days of her girlhood.

Miss Beecher, authoress of a valuable work upon physical education, says :

“The children of this country are every year becoming less and less healthful and good-looking. There is a great change in reference to this matter within the last forty years. In former times, the children in school-houses, or on Sunday in the churches, almost all of them had rosy cheeks, and looked full of health and spirits. But now, the children in churches and schools, both in city and country, a great portion of them either have sallow or pale complexions, or look delicate or partially misformed.

“The children of the former generation could go out in all weathers, were not harmed by wetting their feet, would play on the snow and ice for hours without cloaks or shawls, and never seem to be troubled with the cold. And the tender parents of these days would be shocked to see how little clothing was worn in the bitterest cold of winter.

“But now, though parents take far more pains to wrap up their little ones to save them from the cold and wet, the children grow less and less healthy every year. And it is rare to find a school-room full of such rosy-cheeked, strong, fine-looking children as were common thirty years ago.

“Every year more and more complaints are made of the poor health that is so very common among grown people, especially among women. And physicians say that this is an evil that is constantly increasing, so that

they fear, ere long, there will be no healthy women in the country.

“At the same time, among all classes of our land, we are constantly hearing of the superior health and activity of our ancestors. Their physical strength, and their power of labor and endurance, were altogether beyond any thing witnessed in the present generation.

“Travelers, when they go to other countries, especially when they visit England, whence our ancestors came, are struck with the contrast between the appearance of American women and those of other countries, in the matter of health. In this nation it is rare to see a married woman of thirty or forty, especially in the more wealthy classes, who retains the fullness of person and the freshness of complexion that mark good health. But in England, almost all the women are in the full perfection of womanhood at that period of life.

“Now, it is a fact, that the health of children depends very much on the health of their parents. Feeble and sickly fathers and mothers seldom have strong and healthy children. And when one parent is well and the other sickly, then a part of the children will be sickly and a part healthy.

“Thus, the more parents become unhealthy, the more feeble children will be born. And when these feeble children grow up and become parents, they will have a still more puny and degenerate offspring. So the case will go on, from bad to worse, with every generation. What then, if these things be true, are the prospects of this nation, unless some great and radical change is effected?”

Though these facts must be apparent to all, we notice but little effort on the part of our public instructors to bring the matter before the people in such a light as will arrest their attention. Every man, woman and child, in this country, should be instructed in the laws of their being, of the danger of violating the laws of life, and of

the certain consequences that will result to themselves or their offspring. A man may have the right to do many acts that produce but temporary injury, but he has no right to permanently impair his health, shorten his life, and especially to transmit enfeebled constitutions to his children. As he has no right to do this, it is his manifest duty to study hygiene for himself, and, so far as it is in his power, see that the rising generation is properly instructed. Harpers, of New York, have done much to improve the character of a common school education, by introducing readers, that, while they teach reading, also give such knowledge of nature and nature's laws as will prove of life-long service to the learner. May such books soon take the place of those vapid school books that have but the one idea—reading.

It is not valid reasoning to say that these matters pertain exclusively to the practice of medicine, and should not be meddled with by the people. A man's life is his own, his health is his own, and in the preservation of both he has more interest than any other person. The knowledge that should guide him is obtained without much difficulty, and the facts are so plain and easily understood that no one need go astray. While I thus advocate the diffusion of this knowledge among all classes, I do not wish to be understood as recommending that each person should be his own doctor, or that he should turn his entire attention to his body, watch himself live, and thus become a hypochondriac.

DWELLINGS.

The dwelling, or, as I much prefer to call it, the *home* of a family, has much to do with its health, both physical and moral. Of course, our habitations will vary with our means and tastes, or we may be forced by circumstances to occupy houses that are objectionable; still, a few plain rules may guide us if we have the power to select a residence.

In the country, other things being equal, the house should be built on ground that is sufficiently rolling to permit rapid surface drainage. If no such ground is found, make an artificial elevation. The reasons for such choice are obvious—it prevents dampness of the ground adjacent to the house, insures to some extent dryness of the walls, and gives better cellars. If the soil is naturally wet, especially if clay, money will be saved by putting in tile drains.

In both city and country, a house is healthier by having cellars under it, providing those cellars are kept dry, well ventilated and free from decaying vegetable or animal material. Damp cellars are fruitful sources of disease, and this is greatly increased by allowing the remains of vegetables to decompose within them. Numerous instances have come to my knowledge, where serious and long-continued sickness, and in some cases death, have resulted to one or more members of a family by neglect in these matters. To secure ventilation, the house should be elevated from one to two feet above the surface of the ground, and the windows so placed that the prevailing winds in spring and summer may blow through them. Dampness is best avoided by a drain passing to lower ground, but if this is impossible, have a well-hole dug in the center of the cellar, and filled with sand, being careful that it does not become a depository for the offal of the cellar. Weeds, grass and shrubbery are sometimes the cause of dampness; if so, cut them down, at least in such situations as will allow the sun to strike the walls with the greatest effect. Whitewashing cellar walls sometimes answers an excellent purpose in removing dampness and noxious effluvia.

Dampness of the walls of a house, whether it be stone, brick, or wood, renders a house unhealthy. It occurs most frequently upon tough clay ground, and when the house is not sufficiently elevated. In brick or stone houses, it may be prevented in every case by placing a

layer of sheet-iron in the cellar wall above ground, which prevents capillary passage of water upward. Whatever the material of which the walls are composed, they should be protected against absorption of moisture by painting; or, if this is too expensive, by whitewashing. In building a house, barn or stable, always have an over-jutting roof of from eighteen inches to two feet, as a protection to the walls of the house below. Many a good house is spoiled by the poorly-constructed eave-gutters, which are so shallow, or have such slight inclination, that the water does not run off freely. They are wet for a considerable time after a rain, and not unfrequently the wall is kept damp by overflow.

As regards the internal arrangement of a dwelling, we have but little to say in this place. Of paramount importance is it to have the rooms, in which the housework is done, on one floor, and water and wood handy. The mother has sufficient to do in the care and work of the house, and raising of a family, without having her vitality impaired by stairs or unnecessary work. The husband who does not pay attention to these matters, if he thinks at all, is a brute, and if he has not thought until this reaches his eyes, let him look around him and see how he may lighten the cares of his hard-worked wife.

If possible, every room in the house should have the windows and doors so arranged that the air can pass freely through, hinged transoms over the doors being very important for this purpose. Not only is it necessary to have a circulation of air, but, if possible, the living and sleeping rooms should be so placed that the sunlight will pass into them at some period of the day. Air loses, to some extent, its vital properties if not impressed by sunlight; and it is a fact well proved, that cachetic diseases of children, as scrofula, summer complaint, and finally consumption, are produced from neglect in these matters. Magendie proved conclusively, by numerous experiments, that rabbits, and other animals, would soon become tuber-

culous if confined in cellars or dark places; and that we might as well expect to raise vegetables in the dark, or away from sunlight, as healthy children. In the Paris hospitals it has been found necessary, in some cases, to have the patient conveyed out in the open air, as the only means of saving life.

Defective Ventilation.

Defective ventilation, or insufficient change of the air of dwellings, might be considered to readily suggest its proper remedy by the feeling of suffocation induced; but it is not such a deficiency of oxygen, or excess of carbonic acid, as induces a stifling sensation that does most harm; it is rather the scanty supply of fresh air that stints the vital processes without suddenly disturbing them; and the gradual accumulation of foul effluvia, that slowly poisons, without exciting alarm. Persons are gradually brought to endure without complaint the impure air of a close room, which, to any one entering it from the open atmosphere, seems quite suffocating. Thus, in the habitations of the poor, especially in densely-populated towns, it is not rare to find ten or fifteen crowded into one small room, without any other supply of air than that which comes through the floor or window, or when the door is accidentally open.

Insufficient ventilation is by no means confined to the dwellings of the poor. In modern days, when workmanship of houses is more complete than it was in olden times, there are no longer the latticed casements, chinky floors, ill-fitted doors, and, above all, the roaring pile in the spacious hearth, that supplied abundant ventilation to the houses of our forefathers. Now, in proportion as houses are "well built," every crevice is so thoroughly stopped that our rooms, when closed, are well nigh airtight, and their occupiers are inclosed in an atmosphere which is deteriorating in proportion to the number assembled. Add to this the vitiating effect of artificial lights

and of fires, the smoke of which may not freely escape for want of a due supply of air, and it will appear how modern houses often comprise the conditions calculated to produce this cause of disease. In public offices, schools, hospitals, churches, theaters, and other places where great numbers are collected together, the cause is still more fully in operation; and it is quite certain that not only is the public health much injured thereby, but much of the useful and agreeable objects of such assemblies is defeated through the discomfort produced by the closeness and foulness of the air.

The habitual want of pure air, especially, exercises an unfavorable influence on the state of the blood, and the functions of circulation and nutrition, causing pallidity of the surface, poorness of blood, imperfect development of the fibrous principle, which, instead of contributing to the nourishment of the muscles, degenerates into scrofulous or tuberculous matter, the deposition of which, in the internal organs or glands, is favored by the weakness of the circulation.

Fresh air is a cheap commodity, and one very easily obtained; all you have to do is to make an entrance for it. A large fire-place always gives good ventilation—in fact, is the best ventilator. If you use a stove, or a grate, fix the windows so you can lower the upper sash an inch or so. If the windows are on opposite sides of the room, you will have good ventilation, the cold air passing in at one and settling down to the floor, while the heated impure air will pass out at the other. If you have not windows, cut a hole in the wall—it is better to freeze a little, than to breathe impure air.

As we have previously noticed, an individual requires eight hundred cubic feet of air for normal respiration; and sleeping apartments should always be proportioned to this. Thus, a room eight feet square and ten feet in height should never contain but one person, unless it has very free communication with out-door air, or other very

large apartment. A room eight by sixteen feet, will give a sufficient supply of air to two persons, and one sixteen feet square will accommodate four.

Lastly, endeavor to beautify your homes with trees, shrubbery and flowers, as the best means of retaining a contented mind, without which, health can not be enjoyed, or in many cases retained. The earth is full of beauty, and we need but a restoration of that inward sense which takes cognizance of the good—the beautiful, to perceive it; this we can obtain only by cultivation. Make home beautiful; look at the homes of our country, how few come near the standard? In the country, a house situated in an open field, or on a barren hill-side—no trees, no shrubs, no flowers; externally all is dull, gloomy, desolate—a sacrifice to the god of mammon; how very often do we find the inside corresponding, and the hearts of the dwellers therein withering, drying up. We love our homes notwithstanding this—a merciful provision of the Almighty for our happiness. How much more should we love them if we could associate with them thoughts of beauty, of pleasant prospects, of the well-kept lawn, of the neat walks, the shade of trees, the budding flowers, the twining rose that almost curtains our windows, the honeysuckle trained on the old porch, shutting out the burning rays of the summer's sun, and perfuming the air with its fragrant odor. Such thoughts are recalled with pleasure throughout the journey of life, a green spot in the memory which nought can efface. Beautify your homes, then, if not from any delight you take in it, at least for your children's sake; to them it may prove of more service than your hoarded wealth, a constant safeguard against many of the sins of this untoward generation.

CLOTHING.

The acknowledged purpose of clothing, as a means of preserving the health, is to maintain as much as possible such an equal warmth of the surface and extremities of

the body, as may conduce to the comfort of the feelings, and promote a free circulation, with sufficient perspiration and innervation in all the external parts of the body. But the healthful action of clothing is not confined to its property of retaining warmth. It is useful also in protecting the body against the injurious influence of external heat, dryness, moisture and electricity; and varied modifications of the clothing will best answer these several ends under different circumstances.

The lower animals exhibit many interesting facts, showing instinctive or natural provisions for changes in their clothing to suit variations in season and weather, from some of which we may derive useful instruction. The change of coat in horses takes place in spring and autumn, and depends much on the character of the season; the thick winter coat being slow to come off in a cold spring, but soon changing in continued warm weather; so, likewise, cold weather in the autumn accelerates the thickening of this coat, which in horses left to nature we find abundantly provided *before* the severity of the weather is established. Sheep change their wool only once in the year; but its rapid increase before the winter sets in, and its tardiness in loosening and falling off, until June, when all the cold winds of the spring have passed by, afford useful suggestions as to the propriety of anticipating the cold by the protection of dress, and of patiently awaiting its subsidence before we remove that protection. Birds moult their feathers early in the autumn, at which period the new plumage thickens in down and feathery expansion as the winter sets in. In the spring, many of the downy feathers drop off, and are by many tribes appropriated to the lining of their nests; and through the summer the feathers continue to get thinner until the moulting season, when all give place to the new plumage.

It is now generally admitted that woollen underclothing, at least during eight months of the year, is conducive to health. The low conducting power of woollen goods,

serves to retain the heat of the body, so as to maintain an equable temperature, while its porosity permits the escape of the insensible perspiration. Experience would seem to prove that light woolen clothing is also better for the heat of summer, especially for those who labor, permitting, as it does, the escape of perspiration, without becoming wet like cotton, and preventing the rapid cooling of the surface during periods of rest. Laborers on public works, in foundries and iron-works, wear woolen shirts the year round, and consider them the coolest and most comfortable. Our soldiers in the field could not be persuaded to change their woolen for cotton clothes, even in summer, and in a Southern latitude, not only on account of their comfort, but because experience has shown that they greatly aid to prevent malarious disease. Especially should woolen clothes be worn in malarious regions in the fall, when such diseases prevail, as tending more than any other means to prevent attacks of ague and fever.

Children of feeble constitution should wear woolen clothes the entire year, the garments being loose in summer. In my practice I have witnessed a very marked change in such patients suffering from summer complaint and similar diseases, by change of clothing. Children should be warmly clothed, as in infancy the body is not capable of resisting rapid changes of temperature, except at the expense of its vitality. The Germans, as a people, are especially noted for keeping their children warmly clad and still; hence, the nutritive powers of the child are not impaired by the continued draw for combustion, and waste by undue exercise. Infancy is essentially a state of vegetation; hence, all undue exposure and exercise should be avoided.

That most absurd fashion of exposing the child's breast, arms and knees, should be especially avoided, as no matter what fashion may dictate, common sense would say that children look better fully clothed. How often do we see

a mother, especially a *young* mother, with her child but half clad, its arms, breast and part of its legs exposed, when she is warmly encased in woollens and furs. Such mothers should not be surprised that their children die early, or that their constitutions are impaired for life, and learn that it is the height of impiety to attribute it to the dispensations of Providence.

“Under particular circumstances or conditions of the system, additional warm clothing is necessary; for instance, in infancy when the calorific power is low; in old age; in convalescence from acute diseases; during fatigue and other states of weakness; in organic diseases of the heart, when the circulation is feeble; in cases of privation of food; during the operation of purgatives or diaphoretic medicines; and when circumstances prevent the use of a proper amount of exercise. Under the influence of these conditions, a feeling of chilliness arises, particularly on the surface and in the extremities; and this is an indication of the need of more clothing; and if this be put on to prevent the sensations of cold, it will often counteract such disturbances of the circulation and internal congestions as the weakened body is liable to at the time, which too often lay the foundation of future disease.”

Fashions are to be disregarded only when they conflict with comfort or health. All desire to look well and dress well, and the desire is laudable. The old fashion of tight lacing and stays was most abominable, not only for the discomfort that it must have induced, but also for the serious injury to the health. Respiration is of absolute importance to life and health, and in proportion as it is impaired, the health suffers, and life is shortened. No woman, with tightly-laced stays, could breathe freely, and in many cases only the upper parts of the lungs could be used. Hoops were advantageous, inasmuch as they took the place of the immense weight of skirts which before were used to give size, and which, hung upon the hips,

gave rise to many diseases of the lower part of the abdomen.

Take Care of the Feet.

Proper attention to the feet is of much greater importance, as a means of preserving the health, than most persons imagine. Many of the minor diseases which render life disagreeable, as well as some of the more serious affections, result from carelessness in this respect. Exposure of the feet to cold and moisture, for want of sufficient covering, by suddenly checking secretion of the skin, and driving the circulation from the extremities, is a common cause of disease. Protect the feet, therefore, by wearing good stout leather boots or shoes; or, if from affected gentility, such should hurt your feelings, and you *must* wear paper shoes, get a pair of rubbers, lined with canton-flannel, to draw on when you have occasion to expose your feet to the cold or wet.

Cold feet is a very common annoyance with a great many, and directions how to keep the feet warm would not be inappropriate. Make it a rule to wash them once a day in cold water, rubbing them briskly afterward until warm, then drying them carefully by the fire, is a certain preventative, if proper covering is worn. As regards stockings, in some cases woolen will be preferable, but in others we think cotton the best. Thus, where the feet sweat, rendering the stockings damp, a good stout pair of cotton ones will sometimes prove warmer than the woolen. The writer always suffers from cold feet when wearing woolen, but finds it easy to keep them warm, even in the coldest weather, when wearing cotton.

FOOD.

The proper food for the infant up to the end of the first year, is the mother's milk, and if the child receives an abundant supply of this, no other food is necessary or proper. Children very generally suffer from disregard of

one of nature's plainest laws, that they need no other food, until the organization is so developed as to appropriate it. "Wanting faith in the sufficiency of God's arrangements to effect his own purposes, both medical men and mothers used to advise the addition of gruel, arrow-root, or some other farinaceous food, almost from the first month; and the common results were, impaired digestion, and a greater liability to convulsions and other diseases of irritation, especially during the time of teething. But now, a better acquaintance with the laws of the animal economy, joined with a more implicit reliance on the wisdom and benevolence of the Creator, has at last convinced us that the more closely we adhere to the path which God has marked out for us, the more successful shall we be in rearing the young. If, indeed, we bear in mind that the great mortality in infancy is not a part of the scheme of Providence, but arises chiefly from removable causes, and has already diminished as our knowledge has advanced, we shall become more and more anxious to discover and fulfill the laws of the infant organization, as the surest way of benefiting and preserving the child."—*Combe*.

When additional nourishment is required for the child, fresh cow's milk will prove the best; if the child is under four months of age, it will be better diluted with one-fourth part of water, and slightly sweetened with loaf-sugar; if over this age, give the milk alone. Occasionally arrow-root, farina, or corn-starch may be used with advantage, but as a general rule the milk will be preferable. When the child has gained its teeth, it can eat with advantage such food as it can masticate. Farinaceous food seems to answer a better purpose than animal, though an appropriate diet would be composed of both.

The child as well as the adult should have its food at regular periods, and eating between meals should be avoided as much as possible, as the stomach requires those intervals for rest. Give a child as much good, wholesome food as it can digest, but if you love your children keep

them from eating pastry, cake, nuts, and candies; but instead, furnish them with ripe fruits. Candy or sugar is the least objectionable of any of the articles named, and would not be injurious in moderate quantity, if it did not impair the appetite for substantial food.

A mixed diet is the healthiest for the adult, letting animal food overbalance in winter, vegetable food and fruits in summer. Common experience is the best guide as regards articles of food, and there are but few articles but what can be taken in moderation without injury. Rarely do we find a person who changes his habits of life or food from some peculiar notion or whim of his own, and is markedly different from the people around him, but what comes to grief. Sooner or later, even he will be forced to admit, that the experience of thousands of years, as manifested in the general habits of a people, can not be disregarded with safety.

A very common source of disease, is improper cooking or preparation of food, by which it is rendered indigestible or its nutritive properties are impaired. I have seen a beefsteak fried in lard, until it resembled, and was as indigestible as a saddle-skirt; when, if it had been broiled on the coals or stewed in a very small quantity of water, it would have been palatable and easily digested. Or the piece of beef is put in water and boiled for hours, the water being thrown away, and the tough fibrous tissue of the beef served up. So with bread—one will have it solid and tough, a second light but sour, and a third but half cooked, while it is somewhat rare to find the “staff of life” properly prepared. I do not propose to write a cookbook, but simply desire to call the attention to the necessity of a proper preparation of the food as necessary to good health.

As a general rule, people eat too much, and by overloading the stomach they at last so impair its powers that it is with difficulty it will digest sufficient for the wants of the system, and that with much suffering on the part of

the patient. A very good rule to follow, is, to eat until you feel the first sensations of having sufficient for the wants of the system, but never until you have lost your appetite, or until the taste is no longer pleasurable.

FRUIT.

Nothing promotes health of body and mind more than plenty of ripe fruit during the summer and fall; and yet how many do we find living in the country, with plenty of ground to spare, who do not raise enough of any one kind for home consumption. It requires some labor to set out trees and vines; but when once started, they are but little trouble, and repay a hundred fold for the time and labor expended. Again, all this may be done at times when but little else could be accomplished. For instance: the farmer, who complains so much about "want of time" to set out fruit trees, by investing five dollars in apple, pear, peach, and cherry trees, and in grape, raspberry, and strawberry vines, either in fall or spring, when business calls him near a nursery, taking them home, putting them in the cellar, carefully covering the roots with earth, will have a stock to commence with. Then devote odd time to setting them out, if no other place can be found, in the fence corners; and in the space of two or three weeks they will all be planted and ready to grow. Continue this plan for two or three years, and he will have fruit enough, and of the best kind, to supply his family. Continued ten years, and if near a railroad or river, the fruit crop will pay in silver dollars double the amount which by any other means could be obtained from the farm. No farmer should be without fruit of all kinds. In the city we can not live without it; and though it is frequently very dear, yet it is cheaper to buy peaches at a dollar a peck than pills at two dollars a box; the peaches taste better, without any company, than the pills with the very pleasant company of the doctor.

AIR AND TEMPERATURE.

Impure air is one of the most common causes of disease, and should be carefully guarded against. Impurities of the atmosphere arise most frequently from gaseous exhalations from decomposing animal or vegetable material, and though its effects are generally confined to near the locality where the poisonous matters are generated, yet at times they extend to a considerable distance in the direction of the prevailing winds. A badly-arranged privy vault, imperfect drainage or removal of the slops of the house, decaying vegetation near the house, or even a rank growth of weeds or grass in the yard allowed to decompose, is sufficient to give rise to most serious disease—diarrhœa, dysentery, autumnal fevers, or typhoid fever.

It has frequently been noticed that a house will prove unhealthy that is situated so that the winds blowing over a swamp, or piece of low land, will strike it. So, also, is it the case when the house is built so that the prevailing winds blow over newly-opened ground toward the house. In a new country, a family is protected against malarial disease by building the dwelling in the forest, and clearing the land on the opposite side to the direction of the prevailing winds; and on the prairies, by leaving the ground about the house unbroken.

As regards *deficient drainage*, it has heretofore been spoken of as rendering a house damp, but we must now consider it as rendering the atmosphere impure. Dr. Williams remarks, "that the deleterious operation of effluvia arising from this may stop short of a directly poisonous effect, and yet, by adding to the unwholesomeness of the atmosphere, it may gradually undermine the health. The soil which drains from habitations, contains, in addition to excrement, dirty water, the washings and remnants of vegetable matters used as food, and other offal. All these are mixed together, and stagnant, in the corrupting slough that is retained in cess-pools and

privies, or that is carried into sewers. The stench which exhales when these receptacles are opened, gives some idea of the deleterious influence they originate, and the fearfully poisonous nature of the emitted gases, is often proved by the sudden faintness and sickness, nausea, vomiting and diarrhœa, which attack persons engaged in emptying them. * * It is no wonder, then, that every ill-drained house has a Pandora's box ready to pour forth its evils whenever occasion offers; and always oozing them out in degrees sufficient for the impairment of the health of the inhabitants, and the gradual excitement of cachectic and other chronic diseases."

Dryness of the atmosphere is promotive of health, and I have heretofore adverted to the importance of keeping the cellars and walls of the house dry. A very dry air, however, is injurious, as we observe in the winter in stove rooms. It causes dryness and irritation of the respiratory mucous membranes, excitation of the system, and disordered innervation. A stove used to heat a room, does it by heating the surrounding air, having but very little tendency to produce circulation of it or ventilation; it causes extreme dryness and undue expansion of the air, thus unfitting it for respiration. The consequence is, a sense of fullness of the head, irritation of the respiratory passages, debility of the skin, and feeling of languor or listlessness. When warmed by an open fire-place, or large grate, which heats the room by radiation, a free circulation of air is produced, the temperature is not unduly increased, nor is the air deprived of its moisture or other vivifying properties. Sitting in stove-rooms we believe to be one of the most frequent predisposing causes of consumption and other diseases of the lungs.

A *damp* or moist air has less vivifying power than dry air, as it contains less pure oxygen, and is also objectionable from the facility with which it sets up processes of decomposition and infection. Warm, moist air is very relaxing and debilitating to most persons, while cold,

damp air is proverbially unhealthy—checking perspiration, chilling the surface, giving rise to colds, diseases of the lungs, rheumatism, etc.

“The invigorating effect of fresh air may be partly referred to its superior purity, more perfectly adapting it to the work of respiration; but some of its refreshing power is due to a direct influence exercised on the nerves and capillaries of the surface of the body, and through them on the functions generally. This is exemplified in the reviving power which a current of fresh air or fanning exerts over persons in a state of faintness; and this result is the more remarkable when the air is cool and the body has been previously weakened by heat and confinement. The less marked but more enduring benefits of fresh air are experienced in rides, drives, and other out-door exercises, passive or active, which are universally acknowledged to be essential to the maintenance of the bodily health. To obtain the greatest amount of good from these airings, it is advisable not only to resort to localities where the air is most pure and free from contamination, but also to vary its qualities in other respects. Thus the inhabitants of valleys derive benefit from the air of hills—those of inland places from that of the sea—and residents on the sea-coast find advantage in drives inland. For a similar reason, great improvement often results to the health from continued traveling by land or sea; and although this comprises other hygienic influences, beside change of air, experienced teachers rarely fail to distinguish this as being of sensible efficacy, and exercising a marked effect on the vital functions.”—*Williams*.

Physicians are frequently consulted in regard to change of climate for persons suffering from chronic disease, especially consumption, and there has been much diversity of opinion on the subject. It is now pretty generally admitted, and, I believe, conclusively proven by experience, that southern climates are rather deleterious than other-

wise, to a majority of persons suffering from consumption. The warm, moist atmosphere in winter and spring, though of itself tending to relieve irritation of the lungs, debilitates the system, and does not give that vivifying influence that is so characteristic of northern climates. So that, though the sufferer may seem improved for a few weeks, at last the vital powers fail as rapidly as if he had remained at home. Much benefit is obtained in many of these cases, by a residence in the north, as at St. Anthony's Falls, St. Paul, etc., and I am satisfied by experience that a summer or even a winter residence there will be attended with better results than in the South, or the variable climate of the Middle States. A voyage to California, and residence for some time in that State has been strongly recommended in some cases, and attended with most gratifying results.

In very many cases all the benefit to be experienced by change of climate, can be obtained at short distances from home. One of the main objects is change of scene; a second, change of habits; and the third, exercise in the out-door air. If these are obtained it makes but little difference where the person goes, always choosing a section of country that has pure air, and in the case of dwellers in low grounds, an elevated country.

As regards *temperature*, that most conducive to comfort and health, is about 65° Fahrenheit, and it must be an exceptional case that requires that the air of a room should be heated above this. "The advantages of keeping the atmosphere of apartments considerably cooler than the body itself, consists, not only in the greater amount of oxygen that is then contained in a given bulk, but also in the greater force with which the warm, foul air of respiration is carried away from the breathing passages, and a pure medium supplied to them in consequence of the difference of temperature maintaining a current. Overheated rooms are peculiarly oppressive, for the converse reason, unless the air is continually changed by efficient ventilation; and

rooms warmed by stoves or heated air, cause a feeling of closeness which does not result from open fire-places, because these latter communicate heat chiefly by radiation, and leave the atmosphere comparatively cool. The animal body being naturally much warmer than the surrounding air, operates as a ventilator for itself, by the same consummate adaptation of pneumatic laws as that which supplies a flame or fire with a continued current of fresh air; just as a fire burns brighter and clearer in frosty weather, so an animal breathes a purer, denser air at the same time, which, if not injurious by its cold, is refreshing and invigorating to the body."—*Williams*.

EXERCISE.

In order to keep the body in a healthy condition, it is necessary that all parts be called into action. Exercise facilitates the breaking down of the worn out structures of the body, and their replacement by new material. It gives a normal stimulus to the respiratory function, and to the circulation of the blood, increases the excretions, and improves the appetite and digestion. Those who lead sedentary lives have their bodies formed of old and partially worn-out material, and of course, can not enjoy that joyous feeling of elasticity and health that belongs to those in whom the nutritive powers are active.

It is a law in physiology, that a part grows in proportion to the demand on it for action; a wise provision of Providence to adapt man to any situation in which he may be placed. Not only does it increase in size, but in still greater ratio in strength or capacity to perform its functions. Thus we notice that the arms of the blacksmith, and especially the right arm with which he wields the hammer, is increased in size, the muscles are hard and firm, and its strength is greatly increased. The ballet-dancer has the muscles of her legs remarkably developed, whilst the person who sits the greater portion of the time,

finds himself with legs possessing neither size nor strength. Not only may single groups of muscles be increased in size and strength, but the entire muscular system may be equally developed in the same manner. As an example of this we might instance those trained to athletic performances who exhibit themselves through the country, or Dr. Winship, of whom nearly all have heard, who by a systematic course of training was enabled to lift over a ton in weight.

Not only is the muscular system susceptible of growth and improvement, but all parts of our bodies are governed by the same laws. Do we wish to go bare-footed? after a time the skin of the feet is so thickened and protected that we can do so with comfort. Do we wish to employ our hands at severe labor, as cutting wood? nature provides a thicker and tougher envelope for the palms, sufficient to withstand the friction. It is a well known fact, that the brain of the scholar increases in size and density, that the capacity of the lungs is increased by exercise, that if one kidney be destroyed by disease, the other will become much larger and fulfill the functions of both, etc.

These facts should learn us, that if it is desirable to increase our muscular power, the only way in which it can be done, is by a continuous and judicious exercise of the entire body. Do we wish to increase the power of any particular muscular part? we call these muscles into action day by day until the purpose is accomplished. Do we desire a larger and better pair of lungs? we adopt a continuous course of exercise for them, and the development is almost certain to follow. Thus I very frequently have occasion to recommend to persons with weak lungs and thoracic muscles, that they increase the capacity of the chest by frequent full inspirations, and the strength of the respiratory muscles, by dumb-bell or similar exercise. The system of free gymnastics that is now being introduced into our public schools, is a most excellent plan for the development of the muscular system, the only trouble

being that the teachers do not seem to be impressed with the fact that time is necessary to develop increased nutrition and strength.

Those who labor in the open air have no occasion for gymnastic exercise, their only trouble being to avoid excessive action which weakens instead of giving strength. To those engaged in sedentary employments, the cultivation of a garden, sawing the wood, or other useful outdoor employment may give the necessary out-door exercise. It is recorded of Dr. Lyman Beecher, that he not only sawed his own wood to obtain the necessary exercise, but would gladly aid his neighbors for the same purpose. If you can not be suited in this way, have a swing made in your shop or office, of a couple of pieces of rope firmly attached to the ceiling, and a stout piece of round hickory at such a height that you can just reach it with your hands, grasping this, the act of swinging will call into action all the muscles of the body. A pair of dumb-bells will answer a very good purpose if associated with considerable walking.

Though exercise is so essential to health, it is necessary to avoid carrying it to excess, as serious injury might follow. In adopting any course of exercise it must be commenced with moderation, and never carried to exhaustion. Day by day the capacity for exercise will be increased, and the time can be prolonged with safety, until a normal amount is obtained. There is no use of exhausting vital power in swinging by the hands, or using a pair of dumb-bells; all that we desire by their use, is to give normal nutrition and strength.

In the case of feeble children, a systematic course of physical education, will, in many cases, yield a strong and robust body, when, without it, the child would have sunk into a premature grave. So in many diseases, by calling into moderate action the parts affected, or those closely associated with them, we sometimes accomplish wonders.

MENTAL OCCUPATION.

Mind has great influence over matter, and we nowhere have better examples of it than in our bodies. An occupied, contented mind conduces to health, the reverse to disease. No better proof of this proposition is needed than the evidences of our observation on persons around us; the restive, anxious countenance, indicative of cares or an ill-spent life, most surely tells the story of future physical ailments, while the busy and contented, other things being equal, rarely have need for the physician.

Over activity of the mind from study or business, or caused by cares or misfortunes, is exhaustive of vital power, prevents normal action and nutrition of other organs and parts, and thus destroys the harmony that should exist in our bodies. Ask your physician, and he will tell you the most difficult cases of diseases he meets with, are in persons of this class; and he sometimes finds it impossible to give the patient relief in cases in which otherwise he would find but little trouble.

A hale gentleman of ninety-four, had one evening contributed largely to the entertainment of a social party, by his performances on the violin. After his departure, the remainder of the company set themselves to speculating on the causes of the good health and soundness of condition, which he continued to enjoy at so advanced an age. After many theories had been discussed, one gentleman, who happened to be a near relative of the venerable violinist, told his companions that "he believed they were all wrong, upon good grounds of observation; it was his conviction that Mr. ——— owed his singular length of days and good health to nothing else than his playing on the violin. He had been a player on that instrument *for the last seventy-eight years*, had during that time played more or less every day, enjoyed it keenly, made others happy by the strains, and derived happiness from seeing them happy; lively music had been the very salt of life

to him—he scarcely ever knew what it was to be dull or in low spirits. As there was no other special circumstance in his condition, it became apparent that Mr. — had reached an unusual age, in unbroken health and strength, solely by playing on the fiddle!” The company was startled at first, but after a little reflection, they fully admitted that in all probability the right explanation had been given.

And it undoubtedly was so. It is now quite settled among physiologists, that cheerfulness sustains, and care depresses, health, and that a certain amount of happy sensations is necessary to the prolongation of life. The doctrine works out its verity in a striking manner, wherever there are large bodies of men concerned, as in military or naval expeditions. That officer, it is acknowledged, is sure to have the healthiest regiment or ship’s crew, who best can sustain their cheerfulness, or keep them in merriment; and for this reason, it becomes a matter of *serious concern* to encourage the men in getting up plays and sports among themselves. This was done with the best effects by Captain Parry during his compulsory wintering in the Arctic regions. We will, on the same grounds, pledge any reputation we may have for wisdom, to the conclusion that, in two families of young children, brought up in circumstances otherwise identical, and starting with equal advantages in point of constitution, that will be the healthiest, and come to the most satisfactory set of men and women, which has been in the hands of parents of cheerful and kindly dispositions; which has been most encouraged, under decent bounds, to laugh, to play, to dance, to sing; has been the least frowned at, awed down, and frightened; which, in short, has been made the happiest.—*Chambers’ Journal*.

SLEEP.

Sleep is the normal restorative of the body, giving rest to the various organs and tissues, and time for their nutri-

tion. Especially is sleep of importance to the nervous system, as during it there is complete suspension of the cerebral and sensorial functions, and when this necessary rest is obtained, the mind again acts with vigor. During sleep, every function is in abeyance, except the vegetative, hence waste of the tissues is arrested, and the vitality of the body can be concentrated for its own repair and protection.

The young require a great amount of sleep—the infant almost the entire time except when nursing, as its functions are purely vegetative; and the child of two to four years, ten or twelve hours at night, and its mid-day nap of two or three hours. It must not be supposed that this arrangement can be broken into with impunity, as disease will in very many cases result from neglect in these particulars. The adult requires at least eight hours of refreshing sleep; some need more, while others can do with less, but this seems to be the average.

“The influences which prevent or disturb sleep are, any undue excitement, or sensation of body or mind, whether of a painful or pleasurable nature; strong, sudden, or startling impressions on the senses; uneasy postures; extreme fatigue or exhaustion; oppressed or imperfect breathing; palpitation of the heart; hunger, thirst, nausea, flatulence, and various other (often undefinable) sensations in the viscera; extremes of temperature; coldness of the extremities; irregularity in the habits of seeking repose.

“The loss of rest is so seriously detrimental to health, that it is of the utmost importance in a hygienic point of view, that this result should be obviated; and beside avoiding, so far as may be possible, the several causes of wakefulness just specified, bad sleepers should strictly attend to the following directions for their regimen, rather than resort too hastily to hypnotic drugs, which, although sometimes useful and necessary as temporary expedients, lose their power by habitual use, and produce other evil

consequences which render their long continuance improper.

“Bad sleepers should make a regular practice of early rising. It may cost them some effort at first; but if they desire to have sound rest, they should seek it at the natural time, and not late in the morning, when the excitements of the day begin. Their hours for meals and exercise should also be early and very regular, both in order to promote that state of health most conducive to ease and freedom from suffering, and also to secure the accomplishment of the processes of digestion, and consequent excretion or eructation before night, which is the proper period for repose. Exercise should be taken freely in the open air as the strength will permit, without causing lasting fatigue; and if walking or riding can not be borne without such result, driving or sitting out in the open air several hours in the day, may often be resorted to as an efficient substitute. As the hour of retirement for rest approaches, every description of excitement should be avoided.”

EXCRETION.

Care of the person, so as to promote excretion from the body by the skin, kidneys and bowels, is among the most important of hygienic measures. We have already seen that the broken down elements of our bodies are removed by these channels, and that their retention invariably produces disease.

The *skin* is not only a very important excretory organ, giving exit to about half an ounce of deleterious material daily, but it is also, to some extent, a respiratory organ, and is very intimately associated in sympathy with the vascular and nervous systems. Very many acute diseases arise from sudden arrest of this secretion, which would not occur if proper attention had been habitually given it, so as to give it tone and strength. As a general rule, bathing for the purpose of cleanliness is all that is

required, but in some cases special baths are appropriate.

Quite a large number of persons seem to have as great a horror of water, locally applied, as if they had been bitten by a mad dog; and for years their bodies have never received a thorough cleansing. Such fossils are passing away, and the rising generation better appreciate the usefulness as well as luxury of a bath. Children should be habituated to the use of the daily bath in summer, and two or three times a week in winter. In early life the water should be tepid, but after the age of three or four years, it can usually be used cold. Occasionally it should be employed warm, with soap, for the better removal of the oily secretion of the skin.

Every house should have appliances for bathing. They need not be costly, and do not require much skill in their preparation. When it is not convenient to have a bathing tub, an India rubber bathing cloth, costing six dollars, and lasting for years, will answer an admirable purpose. If this is not readily obtained, purchase a yard and a half of common oil-cloth, and sew a half inch rope in its borders to keep the water from running on the floor. Spread either of these on the carpet, and with a basin of water, a sponge, and crash towel, the luxuries of a bath may be enjoyed in perfection. If a person is of feeble constitution, use tepid water, or if it is desired stimulating, add salt, but if reaction is readily established, employ cold water.

The habitual use of the cold sponge-bath, is the most efficient means of preventing *colds*, and the entire series of acute diseases which arise from them. A woman applies to me, remarking that she can not put her hands in water or expose herself to change of temperature, without having *ague in the breast*. I advise the daily use of the cold bath, commencing with tepid water, and gradually lowering the temperature, and she ceases to be troubled with her annoying complaint. Another is troubled with a harassing cough through the winter, and is continually

taking cold. The same advice followed out, gives almost entire exemption from cold or cough. A child has frequent attacks of croup, to the great distress and annoyance of the parents; the habitual use of the bath is found to arrest this tendency. It may be laid down as a general rule, that the best prophylactic to colds, is the use of the cold sponge-bath.

In very many cases of commencing cold arising from exposure, the use of the hot foot-bath will re-establish secretion from the skin and prevent disease. The general tepid, or warm bath, is frequently of much advantage in the same cases, and also after exhaustive mental or bodily exercise, especially if followed by brisk friction. The warm or cold head-bath will be found very useful in obviating excitations of the brain, and the many evils that flow from it.

The *kidneys* are generally supposed to be able to take care of themselves, and no attention is paid to their secretion. As we have heretofore noticed, it is the most important excretion of the body, and life itself is dependent upon its continuance. Irritation of the nervous system, headache, dizziness, derangement of the stomach, etc., flow from its partial arrest. As water increases the quantity of urine, it will, in these cases, be found advantageous to take a tumbler full of cold water before breakfast, and such exercise as, while it calls the muscles into play, will not excite perspiration.

In the summer, the secretion of urine is decreased, and the secretion of the skin increased; in winter it is the reverse. If, therefore, a sufficient quantity of water is not passed through the kidneys to wash away the solids of the urine, it is of advantage to increase the amount of fluids taken, and lessen the excretion from the skin by the use of the bath.

The urine should be regularly voided, and not allowed to accumulate in the bladder. Want of attention in this respect may produce but little difficulty in the young, but

in after life it may occasion very annoying diseases of the urinary organs. Especially is the habit of long retention of urine on the part of woman to be deprecated, as it changes the position of the pelvic organs, and gives rise to such relaxation as produces the various displacements that prove so deleterious to the woman's health.

Regularity of the bowels is essential to perfect health, not only because the secretions should be promptly removed, but more especially because torpidity of the intestines impairs digestion. A very little attention on the part of the young will establish habits of regularity that will last for life, and in a large majority of persons, observance of the following rules will overcome habitual constipation.

Some regular time should be selected for this excretion, and punctuality to the minute, should be attended to. This, like many other functions, is naturally periodical, and when, again, a definite periodicity is established, no further trouble will be experienced. If the bowels are sluggish and will not move at these times, an injection of cold water will accomplish the desired object. With persons whose bowels act regularly, the feculent matter is ready in the rectum for expulsion at the proper time; but in those of a lax and sluggish habit, and who have torpid bowels, time is required to effect the object. Violent straining is injurious at all times. "Repeated gentle and sustained abdominal contractions, assisted, if necessary, by kneading pressure or friction downward in the left iliac region, in the direction of the sigmoid flexure, with occasional variations in the position of the body, are the safest and most efficient means for accomplishing the object, but they require the sacrifice of a few minutes of time, and if the end were not worth the sacrifice, I would not trespass upon the delicacy of my readers by this allusion to so disgusting a subject."

Intoxicating Liquors as a Cause of Disease.

The abuse of intoxicating drinks is almost invariably followed by disease, and it is well to know why this is the case, so that if we shorten our lives in this way, we may at least have the satisfaction of not doing it ignorantly. Alcoholic liquors are soon absorbed, their stimulant action being speedily exercised on distant parts, especially on the vascular and nervous system. Being absorbed by the veins, they pass by the portal vein into the liver, the function and structure of which are peculiarly apt to suffer from excesses, especially when spirits have been freely indulged in. So, too, the kidneys, which are the natural emunctories through which such extraneous matters are eliminated from the system, are often over-stimulated, and are injured in their secreting power, and ultimately in their structure also. The heart and vessels are over-excited at first, and afterward lose their tone, and the processes of digestion and nutrition become modified. The nervous system is an especial subject of the disordering influence of intoxicating liquors. A large quantity taken at a time is a narcotic poison, inducing a short period of cerebral excitement or intoxication, followed by insensibility, in which the functions of the brain are more or less completely impaired, and in extreme cases those of the spinal marrow suffer; and if the influence be insufficient to stop respiration, yet it may be imperfectly performed, and congestions are formed in the brain and other organs. Hence apoplexy, palsy, phrenitis, or delirium tremens may follow, and the whole frame may suffer from the effects of the poison. Even when less excessive quantities are taken, and their first effect is mere intoxication, the headache, sickness and inappetency, and the feelings of wretchedness and depression which often ensue, sufficiently prove that disorder has been produced, and that such artificial excitements can not be abused with impunity.

The habitual indulgence in strong drinks causes further

varieties of disease, which are so prevalent as to deserve notice. When taken only or chiefly with food, not as a substitute for it, but as a constituent of general "free living," they contribute to the production of an abundance of ill-assimilated, over-heated blood, which either finds its vent in eruptions on the surface, or in local hemorrhages or fluxes, or causes various functional disorders, such as palpitation of the heart, vertigo, stupor, dyspepsia, bilious attacks, etc.; or may tend to the production of a fit of gout or gravel. The latter results are promoted by such beverages as contain much free acid as well as an abundance of spirit; such as port wine, rum-punch, and hard, strong beer. The less acid malt liquors, ale and porter, tend rather to induce liver disorders, and an abundant deposition of fat in the body. All these consequences will be much favored by sedentary habits and deficient excretions; active exercise carries off much of the spirit and superfluous aliment, by an increased elimination of the acids of respiration and perspiration.

The most disastrous consequences of intemperance are exhibited by the habitual drunkard, who, in proportion as he indulges in liquor, loses his appetite for food, and his power of digesting it. He then drinks and starves, and the disease which ensues comprises the exhaustion of inanition with the more direct effects of the alcoholic poison. Thus, in delirium tremens, the drunkard's disease, together with the permanent restless excitement of the irritated nervous system, which adds more and more to the exhaustion, the weakness of mind and body, is fearful, and in bad cases affect even the organic functions, so that the pulse is very weak and frequent, the excretions scanty and depraved, and the respiration is too imperfectly performed by the involuntary powers to permit sleep to ensue. This exhaustion must soon terminate in death, unless prevented by appropriate treatment.

Again, we find that the habitual use of intoxicating liquors increases the severity of acute diseases, and renders

them less amenable to treatment. In epidemics it has been found that intemperance, or even what some term a *moderate* use of stimulants, predisposes to an attack. Thus in the epidemic of cholera in this city in 1849-50, the drinking of liquor, instead of proving prophylactic, as some fondly supposed it would, increased the predisposition to the disease, and greatly aggravated its malignancy.

These reasons, if there were not others of a much stronger nature, should prove sufficient to cause a man to live temperately. Total abstinence, however, is preferable, because it is morally easier to practice; the faculty of restraining an appetite, after it has been once formed, being possessed by few.

PART III.

MEDICINES FOR FAMILY USE.

Medicines for family use should be few and simple, and such as will tend to favor nature's processes of cure. The harsher and more violent means of treatment should always be left in the hands of the physician, as it is not to be supposed that the unprofessional person can have such knowledge and experience, as will render their use safe and beneficial. Medicine should be used only when there seems to be absolute need for it, and in all, but the milder cases of disease, under the direction of a well educated physician. Still, there are many minor ills that may be appropriately treated by the family, and in many cases it being impossible to obtain a physician, even severe cases, will for a while, remain under domestic management.

In order to understand more fully what may be rationally accomplished by medicine, we will notice how nature relieves the system, premising that this is the only safe method, and that when medicines are used, they should be employed to stimulate and control these natural processes. Let it be recollected that a large proportion of the sick will recover without the aid of medicine if careful attention is paid to nursing and diet—say as much as 80 per cent. of bilious or even typhoid fever; 85 per cent. of inflammation of the lungs, and similar proportions of other diseases. There can be no mistake about this matter, as it is the result of most carefully conducted experiments. It is said that *nature* relieves these cases.

“There is,” says Dr. Williams, “in organized beings, a

certain conservative power, which opposes the operation of noxious agents, and labors to expel them when they are introduced. The existence of this power has long been recognized, and in former days it was impersonated. It was the *archæus* of Von Helmont; the *anima* of Stahl; the *vis medicatrix naturæ* of Cullen. But without supposing it to be ought distinct from the attributes of living matter, we see its frequent operation in the common performance of excretion; in the careful manner in which the noxious products of the body, and offending substances in food are ejected from the system; in the flow of tears to wash a grain of dust from the eye; in the act of sneezing and coughing to discharge irritating matters from the air passages, and in the slower, more complicated, but not less obvious example of inflammation, effusion of lymph and suppuration, by which a thorn or other extraneous object is removed from the flesh.

“This *vis conservatrix* is alive to the exciting causes of disease, and in persons of full health it is generally competent to resist them. How it resists them will depend upon what they are. For instance, is cold the cause? This throws the blood inwardly, which, by increasing the internal secretions and exciting the heart to increased action, establishes a calorific process which removes the cold. Is the cause improper food? The preserving power operates by discharging this speedily by vomiting or by stool. Is it a malarious or contagious poison? It is carried off by an increase of some of the secretions. But if this resisting power be weakened, locally or generally, or if the exciting cause be too strong for it, then the cause acts, and disease begins.”

It has already been stated, that in many cases, the natural powers of the system are sufficient for the restoration of health, and, also, that the physician or other person who proposes to benefit the sick should understand and carefully assist these efforts of nature. The question now comes up, how does nature remove disease?

In general diseases, as fevers and acute inflammations, we find that this is accomplished by a concentration of the vital force, and an increased secretion from those organs that normally eliminate noxious materials circulating in the blood. Of these organs the kidneys, skin and glandulæ of the intestinal canal are the principal. In all of this class of diseases we find that one or more of these organs are inactive during its progress; but their activity and the quantity of the excretion is greatly increased in the decline of the disease. The opinion is very prevalent among physicians, and is taught by many teachers and the majority of text books, that this increased excretion is not a necessary process in the removal of disease—that it is mainly the result, and not the cause of the cure. We will also find that these same authorities never allude to the fact, that the system will, in a majority of cases, relieve itself of disease.

Any one who carefully examines the properties and action of all the most prominent articles of the *materia medica*, can not fail to be convinced that a very large majority of them owe their beneficial effects either to a direct or indirect action in increasing excretion and the elimination of morbid materials from the system. Thus the classes of *diaphoretics*, *diuretics*, and *cathartics*, act directly in this way, and are administered for this purpose. The entire class of *alteratives*, also, undoubtedly owe their beneficial influence in most part to their eliminating action. *Emetics* not only act directly as eliminatives, by causing the evacuation of morbid secretions from the stomach, but also indirectly by their sedative and relaxing effects upon the system when under a high state of excitement, this relaxation being almost invariably followed by an increased action of the skin, kidneys, and bowels. So with the prominent class of *sedatives*, though not directly affecting the secretory apparatus, yet by their controlling influence over the circulation, high vascular excitement is subdued, and secretion is the natural result.

If we trace the course of any general disease where no treatment has been pursued, we will find that increased secretion and consequent elimination always precedes a change for the better; and the same is true when even the most opposite remedies have been used. Without this increased elimination does take place, death is inevitable. Acting on these views, Eclectic physicians have been very successful in treating the common acute diseases of this country. Their attention has been especially drawn to the importance of due attention to these emunctories, and a large portion of the treatment is directly to stimulate elimination in this way. In addition to this, the fact generally recognized by them, that in disease there is always a depression of the vital force of the system, and that this should be kept up by *tonics* and *stimulants*, has also added materially to their success.

That nature is able to cure almost all curable diseases, is clearly proved by the results of homœopathic treatment. There are but comparatively few who have any faith in their *attenuations* and *dilutions*, and yet we find that more favorable results are obtained under this plan than under the old depletive system. This well-known fact is sufficient evidence that the sick will get well without medicine, and that medicine said to be scientifically administered, is responsible for no small per centage of deaths under regular treatment.

If this be so, you might well ask me, what is the use of physicians, or medicine? The province of medicine is undoubtedly to place the system in such condition that it can resist disease, remove such material as may endanger the integrity of its structure, and repair such lesions of structure as may be produced. As examples: the stomach has been overloaded with crude, indigestible material, its function is impaired, the entire system sympathizes, and the person is sick; nature will sometimes remove the offending material by vomiting, at others, by the bowels; art steps in, gives an emetic, and the disease is at once

arrested. The bowels become torpid, secretion is arrested, and the material remains to some extent in the blood, impairing the functions of the entire body; the natural powers of the system will be sufficient in a very large majority of cases to re-establish the secretion, but days may be required; art gives a cathartic, and the secretion is at once restored. The person has been exposed to vegetable malaria. The blood is poisoned, and fever is the result. In a very large majority of cases, nature is sufficient to remove the disease, but weeks may be required to effect it; art steps in, and by the use of remedies to restore the excretions, and quinine to restore innervation, and for its antagonistic action to the malarial poison, the disease is arrested in two or three days. In continued fever, as we have already seen, the disease will be removed by the natural powers of the system in eighty per cent. of the cases, but a period of weeks will be required; art furnishes a special sedative which quiets the excitement of the circulation, and relaxes the system, and remedies which re-establish the secretions, and thus in a few days the fever poison is removed. We do not in these cases save life in but few instances, because but few would die if left to the natural powers of the system. We do, however, shorten the period of sickness two-thirds or three-fourths, save much suffering, and prevent that great exhaustion and impairment of vitality which would frequently result. In doing this, we rest our claim as benefactors of humanity.

In other cases we set up a different action in the system, which is but temporary, and unattended with danger, to relieve disease of some important organ or part. We thus give stimulant cathartics in inflammation of the brain and other organs, diverting determination of blood from the part originally diseased to the bowels, and thus lessening or arresting the inflammatory action. For the same reasons we use the sinapism, blister, cups, or irritating plaster.

In others again we are enabled to employ a *specific*, which acts directly upon the diseased structure, restoring its healthy function, or neutralizes the poison which is the cause of the diseased manifestation. As examples of this, we may instance the employment of the tincture of muriate of iron in erysipelas, the use of belladonna in scarlet fever, the drosera in whooping-cough, and the cough of measles, the bromide of ammonium in some cases of epilepsy, etc. It is true, doubtless, that in the strict acceptation of the term, we have no specifics in medicine, but it is only, as I believe, because our knowledge of disease and the action of remedies is imperfect.

In other cases we stimulate the various organs to a better performance of their functions, and furnish to the body the material for increasing its tonicity and repairing the waste of structure. For this purpose we use the bitter tonics, iron, phosphorus, sulphur, the alkaline bases of the blood and tissues, acids, and fatty and albuminous material that is easily appropriated.

In all that we do, we keep constantly before us the physiological action of the different organs or parts, and the normal action of the body as a whole, and as far as possible, bend every means to get such normal action. And finally, we carefully husband our patient's vitality and resources, and prevent their unnecessary expenditure or their direction in a wrong channel. This, it seems to me, is the line of duty for the physician, and the only one in which his efforts will be attended with success.

The medicines most appropriate for family use, may be classified under their usual heads of emetics, cathartics, diaphoretics, diuretics, sedatives, narcotics, alteratives, tonics, stimulants, astringents, anti-spasmodics, expectorants and emollients.

EMETICS.

An emetic is a remedy which, when taken into the stomach, will produce an expulsion of its contents, or

vomiting. Some remedies of this class, as lobelia and ipecac, produce nausea, and a feeling of prostration, while with others, as mustard, no such effect is produced, or it is but temporary. The first class of agents are absorbed into the blood, and act from it, hence the nausea; while the last causes emesis by irritation of the mucous membrane of the stomach. Vomiting may likewise be induced by taking large quantities of tepid water, the distention of the stomach being the exciting cause, or by passing the finger down the throat, and thus irritating a branch of the nerve that is distributed to the stomach.

Emetics are most commonly used for the following purposes: 1st, to remove any agent or material that is likely to produce injurious consequences, as in cases of poisoning; 2d, to remove the morbid or vitiated secretions of the stomach, and undigested food, and stimulate a normal supply of blood and nerve force to it; and 3d, to produce relaxation, and an equal circulation of blood in all parts of the system.

The indications for the use of an emetic are usually very plain, and, if carefully observed, there is little danger of going astray. An emetic may be used with advantage when a person suffers with pain or cramp in the stomach produced by green, indigestible food, or by taking food in too large quantities; or in any case where it is evident that the contents of the stomach are producing irritation. In the commencement of disease, an emetic is indicated by a foul tongue, bad taste in the mouth, and feeling of weight and oppression in the region of the stomach.

1. **TEPID WATER AS AN EMETIC.**—A very good action may be obtained from simple warm water in the second and third cases just spoken of. It is mild and efficient in its action, easily obtained, and if properly used it can do no injury. To get its emetic action, take from one to four pints, drinking it continuously but slowly, so as not to produce too rapid distension. Then pass the finger down the throat once or twice, and efficient vomiting will

follow. If necessary, repeat it two or three times until the stomach is thoroughly freed.

2. COMMON SALT.—Salt will act as an emetic if taken in considerable quantities, and sometimes answers an excellent purpose. Add a teaspoonful of salt to a common tumbler of warm water, and if it does not excite vomiting, repeat it in ten or fifteen minutes.

3. MUSTARD.—Mustard is an excellent emetic in many cases, acting very kindly, and without the slightest danger. We always use it in poisoning by laudanum, or other preparation of opium; and frequently when it is necessary to remove irritant material from the stomach, as in colic, cholera morbus, etc. Add a teaspoonful of ground mustard to a common tumbler of warm water and drink it at once, repeating in a short time if necessary. In cases of cramp of the stomach, colic, or cholera morbus, arising from indigestible food, it will be found to answer an excellent purpose.

4. BONESET—(*Eupatorium Perfoliatum*).—This very common and well-known plant may be used as an emetic in cases of cold, commencing inflammation, and when it is desirable to produce free perspiration. Its action, however, is in some cases quite disagreeable, acting slowly and with difficulty, and producing great nausea and prostration. Add a small handful to a pint of boiling water; let it stand in a covered vessel until tepid, then give a wine-glassful every ten minutes. Its action may be aided, and unpleasant effects avoided, by drinking ginger tea or other gentle stimulant.

5. IPECACUANA.—Ipecac is one of the most certain and efficient of the true emetics, and may be employed in any case in which an agent of this character is needed. From fifteen to twenty grains of the powder may be taken and repeated every fifteen minutes, until the desired action is obtained. Some stimulant infusion should be given with it, as every remedy of this class acts more kindly if taken with a large quantity of fluid.

6. EMETIC POWDER.—We employ a combination of lobelia, ipecacuanha, sanguinaria, and ictodes, of each two ounces; capsicum, half an ounce. Pulverize and mix. It is the most thorough and efficient emetic that I have ever employed in acute affections, as fevers and inflammations. It first produces nausea, the patient becoming very sick, relaxation of the entire system, an equal circulation of blood, and complete evacuation of the stomach. Add a heaping teaspoonful of the powder to three-fourths of a teacupful of boiling water; let it stand fifteen minutes, when it will be ready for use. Give it in tablespoonful doses every five or ten minutes until it operates freely; an abundant supply of warm water, or gently stimulating tea being taken to render its action easy. Its administration may be continued for half an hour, or hour, or until the necessary effects are produced.

CATHARTICS.

Cathartics are remedies which cause evacuations from the bowels, and are divided into five classes—*laxatives*, *mild cathartics*, *cholagogue cathartics*, *hydragogue cathartics*, and *irritant cathartics*. The first produce a gentle action on the bowels; the second act thoroughly, but without irritation or prostration; the third act on the liver, stimulating increased secretion of bile; the fourth produce large watery discharges; and the fifth act with very great vigor and intensity.

The objects to be obtained by the use of cathartics, are the removal of irritant accumulations in the bowels, and obtaining increased secretion and consequent elimination. As heretofore remarked, the bowels should be attended to in such manner that they will act regularly without the use of medicine, and let cathartics be employed only when there seems to be absolute necessity for them. The indications for a cathartic are, sluggish action of the bowels, with constipation, loss of appetite, coated tongue, and

headache. In these cases a gentle cathartic will frequently remove all the unpleasant symptoms.

ARE YOU BILIOUS?—Few persons pass through this world of ours, without having asked or answered the above question. “Liver complaint,” though not quite so common as it was a few years back, is yet in many sections the prevailing disease. A person has the headache—some kind friend informs him he is bilious; his appetite has become impaired by eating late suppers and drinking schnapps—“he is bilious;” he has not, in any particular, observed the laws of health, for, may be, ten, fifteen, or twenty years, he feels bad at times in consequence—of course he is bilious; he has made it a rule of life, never to get up from table as long as he can introduce more food; the stomach is constantly over-worked, and finally shows symptoms of rebelling—then he is bilious. Bilious people are the rage in this age of fast living and over exertion.

The doctors, too, kind souls, have also taken up the cry; in fact, we might say for the last fifty years, it has been their “harp of a thousand strings.” If called to a patient, and they could not readily diagnose the disease, of course he was bilious, or had liver complaint. In fact, nothing could be said that would impress the patient with greater confidence in the physician’s skill, than to tell him he was bilious, that being readily comprehended by all, and being perfectly satisfactory. Even where the physician had better names for disease, it would not do to use them, as the patient or friends knew it was liver disease, and if the doctor did not coincide, they would employ some one that would.

Again, remedies for biliousness were plenty; the bilious person could find in any shop or store, half a dozen varieties — “anti-bilious pills,” “liver renovators,” “chologogues,” “blood purifiers,” etc., all warranted to work off the offending bile, and give certain relief. Or, being somewhat afraid of quack medicines, could keep ready

prepared a lump of *blue mass*, or bottle of calomel, to be taken as occasion required—a certain panacea for all the ills of life. The physician, too, how handy it was for him that patients were bilious, as for that, if for nothing else, he had a specific in *blue pill*, *calomel*, *mercury and chalk*, etc. Eclectics, too, like others, are sometimes bilious, and have their anti-bilious remedies, in the shape of podophyllin, leptandrin, etc., but we are happy to believe it is not a common complaint with them.

If I have any advice to give, it is to beware of biliousness; live temperately, keep the skin in good condition, by the use of a daily, at least a weekly bath, accustom the bowels to move, as regularly as you eat your breakfast; above all things, eschew the taking of anti-bilious medicines, and my word for it, you will soon outgrow being bilious.

If cathartics have to be employed, choose those that act mildly and efficiently, and leave the bowels in good condition, as very many leave them more obstinately constipated than before the medicine was taken. Use them as seldom as possible, and after their action take especial pains to regain a habit of regularity.

7. COMPOUND POWDER OF RHUBARB—(*Neutralizing Physic.*)—This is made of equal parts of rhubarb, bi-carbonate of potash and peppermint herb, finely powdered. It may be used in any case as a gentle laxative, in doses of twenty to thirty grains, but is more especially applicable in cases where a diarrhœa has resulted from accumulations in the bowels. It is a most excellent remedy for children, when the bowels are lax, and the stools look green and frothy, or are light clay colored. It is also one of the best remedies to check irritation of the stomach, nausea and vomiting, and undue acidity and heartburn. We prepare it for children, by adding a teaspoonful to half a teacupful of boiling water, straining when cold and sweetening; the dose for a child two years old, will be a teaspoonful every one or two hours.

8. COMPOUND POWDER OF JALAP.—This is formed of equal parts of jalap, senna and ginger, and is one of the most efficient of the mild cathartics. It is thorough in its action upon the entire intestinal canal, and does not produce nausea or griping, and leaves the bowels in good condition. If it were not for its unpleasant taste and bulk, it would be preferable to any other agent for family use. In cases of wind or bilious colic, it is almost a specific, giving speedy and permanent relief. The dose is about thirty grains, or an even teaspoonful, mixed with cold water.

9. SEIDLITZ POWDERS.—Seidlitz powders consist of two drachms of Rochelle salt, put up in a blue paper, and half a drachm of tartaric acid in a white one; they are dissolved in water in separate tumblers, which being mixed, is drank in a state of effervescence. They are very gentle in their action, and sometimes answer a useful purpose.

10. SOLUTION OF CITRATE OF MAGNESIA.—A solution of citrate of magnesia is put up in bottles holding about twelve ounces, which is pleasant to the taste, and a mild effectual cathartic.

11. CASTOR OIL.—The most nauseous, but one of the best cathartic medicines for family use, is the castor oil. The dose for a child, one year old, is a teaspoonful; four years old, two teaspoonfuls, and for an adult, one or two tablespoonfuls; combined with turpentine it forms a very good vermifuge.

12. PODOPHYLLIN PILLS.—We form a most excellent pill out of half a grain of podophyllin, and one grain each of leptandrin and extract of hyosciamus; the pill being sugar coated when dry. It acts on the liver with greater certainty than any preparation of mercury, and is a slow, though thorough cathartic, leaving the bowels in good condition. The dose varies from one to three pills on going to bed at night.

13. THE BUTTERNUT—(*Juglans Cinerea*.)—If you live where the agents above named cannot be obtained, a most excellent laxative and cathartic may be obtained from the

butternut. Take of the inner bark a sufficient quantity, put it in a tin vessel and cover with boiling water; keep it on the stove or fire, where it will keep hot for one or two days, adding water as it evaporates. Then strain through a strong towel, using considerable pressure, then put the liquor in a vessel with one-half the quantity of molasses, and evaporate with gentle heat to the necessary consistency. It will be quite pleasant to the taste; the dose being a lump about as large as a cherry.

14. MAY APPLE—(*Podophyllum Peltatum*).—The dried root of the may apple is a very active cathartic if taken in large doses, and in almost all cases, its action is attended with griping. Still, if used in small doses, it will stimulate the entire intestinal tract, and answer an excellent purpose. The dose is from ten to twenty grains, combined with ginger, cloves or other aromatic stimulant. An extract may be formed in the same manner as named above, and an excellent preparation obtained.

15. ENEMATA.—Enemas or injections may be frequently used to promote an action of the intestinal canal, when cathartic medicines would prove injurious, and are sometimes necessary to facilitate their action. The syringe used for the purpose, may be the old fashioned pewter instrument, holding half a pint, but a much better one is the rubber pump syringe. Every family should possess one of these, as it may be needed at times when it would not be possible to obtain one, and occasions for their use not unfrequently arise.

The material for the injection is always prescribed by the attending physician, and his directions should be strictly followed. If acting without advice, a pint of moderately cold, or warm water will be found to answer in many cases. A teaspoonful of salt, one of lard, and a tablespoonful of molasses to a pint of water, is frequently used; or a weak soap-suds will be cleaner and answer the same purpose.

In all cases, let the syringe be used with care, so as not

to injure the soft parts, and retain the injection for some minutes with a towel or napkin. If it pass away without causing an action of the bowels, or if retained, repeat it in a reasonable length of time.

DIAPHORETICS.

Remedies that increase secretion from the skin, are among our most important weapons to combat disease, and a majority of the simples used in domestic medicine will be classed under this head. We have already noticed, at considerable length, the importance of maintaining a healthy action of the skin, not only on account of its secretion, but also, because it is the waste-gate for the extra heat of the body, and has a very intimate sympathy with other important parts of the system. Twenty-eight miles of drainage is necessary to keep our bodies in a healthy condition, and this extensive apparatus is under the influence of remedies to free us from disease.

A large number of the more common acute affections arise from arrest of the cutaneous secretion, and in the early stage, they may be arrested by means to restore this secretion. A person has been exposed to a cold, damp atmosphere, draughts of air, or sudden alterations of temperature, and as the result, has a dull headache, running at the nose, poor appetite, constipated bowels, chilly sensations, and feels bad all-over. We say he has caught a bad cold, and experience teaches us that in some cases this will eventuate in fever, inflammation of the lungs or other serious disease. Arrest of the cutaneous secretion has been one of the first causes, and if we now restore this secretion, in all probability the disease will be arrested.

The character of the remedy used to produce sweating, will vary in different cases. Thus, if the skin is cool, soft and flabby, with cold extremities, a stimulant diaphoretic as ginger or composition tea, with a hot stimulant bath, will be the best. If, however, the surface is hot, dry and constricted, an agent that will produce relaxation, will be best.

16. PENNYROYAL—(*Hedeoma Pulegioides*.)—This very common herb is a favorite of mine, and can be recommended as a very certain and pleasant, gently stimulating diaphoretic. Make a strong infusion and drink it hot, at the same time bathing the feet in hot water. It is one of the best remedies known in arrest of the discharge after child-birth, a proof of its power and utility in other affections.

17. CATNIP—(*Nepeta Cataria*.)—Catnip is a gentle and soothing diaphoretic, especially applicable in the treatment of children. It is used in infusion, taken freely.

18. SAGE—(*Salvia Officinalis*.)—Sage is another very good remedy, especially when the bowels seem affected; it is used in infusion, the tea being drank freely.

19. GINGER.—No better diaphoretic can be found in many cases of cold, than a strong infusion of ginger. Especially is this the case, if from recent exposure the surface of the body becomes cold, with a feeble circulation of blood. It acts as a gentle stimulant, improves the circulation, and excites the skin to action.

20. COMPOSITION.—The old fashioned composition powder is an excellent remedy in cases requiring a stimulant diaphoretic. An infusion may be made of one tablespoonful of the powder to a pint of water, and taken freely.

21. WATER-PEPPER—(*Polygonum Punctatum*).—The water-pepper, or smart weed, is another excellent remedy, much better than many that are imported from a distance. It is given in infusion, in cases of cold, arrest of the secretions, etc.

22. PLEURISY ROOT—(*Asclepias Tuberosa*).—Of all the remedies employed to increase the action of the skin, this is my favorite. I prepare it by infusing one ounce in a pint of water, giving a wine-glassful as a dose. Should it be necessary to produce relaxation, half the quantity of the lobelia herb may be added. This remedy is especially applicable when the respiratory apparatus is affected, and

in diseases of children, as it exerts a soothing influence upon the nervous system.

23. DIAPHORETIC POWDER.—This is a remedy much used by physicians, and is made of opium, half an ounce; camphor, two ounces; ipecacuanha, one ounce; bi-tartrate of potash, six ounces. It quiets irritation of the nervous system, induces sleep, and causes free perspiration when given with warm teas. The dose is from two to five grains for the adult; for a child a year old I usually add five grains to four tablespoonfuls of water, sweeten, and give in doses of half a teaspoonful as often as required. In the latter case it is employed to relieve pain, quiet irritation of the nervous system, and produce sleep.

24. THE WARM FOOT-BATH.—This important means, so frequently recommended by the physician, is hardly ever carried out as it should be. The objects to be accomplished by it, are, first, by the application of continued heat to cause determination of blood to the extremities, thus removing congestion of internal organs, and equalizing the circulation; second, to cause relaxation of the skin, and promote perspiration, which it does in a very efficient manner. These objects, it will be noticed, are important ones, and yet I have frequently found where there was the greatest need for its influence, that it was so inefficiently used as to aggravate, rather than mitigate the disease. Thus the feet would be placed in a shallow basin of warm water, kept there for a few moments, and when taken out left wet, being in a short time colder and less freely supplied with blood, than before the use of the bath.

When a foot-bath is recommended, heat a sufficient quantity of water to fill a large wooden bucket, or other utensil, that will bring the water nearly to the knees; have it as hot as the patient can bear his feet in it, and keep up the temperature by additions of hot water every few minutes. It should be used in this way from fifteen minutes to half an hour, or until the desired influence is

obtained, which may be known by the soft, moist condition of the skin. When the feet are taken from the water, they should be thoroughly dried, and a pair of woolen stockings drawn on. When it is used to counteract determination of blood, as to the brain, or in acute inflammation, an addition of mustard to the water is frequently of great service.

25. COMMON VAPOR BATH.—The vapor of water is a most excellent means of inducing perspiration, and relieving disease that is caused by its arrest. Having made up your mind to use a vapor bath, put two or three bricks or irons on the fire to heat; set a bucket partly full of boiling water under a wooden-bottomed chair, and, divesting the patient of his clothing, sit him on it, with a blanket, investing both him and the chair, and closely fastened around the neck. Now take the hot brick or iron in a pair of tongs, and slowly immerse it in the water, to produce the required quantity of steam. It may be continued until the patient perspires freely, giving him at the same time some diaphoretic infusion, and having his feet in hot water. When the desired effect is produced, rub him dry, and pack warmly in bed. No means of treatment will be found more effectual than this in many cases.

If the patient can not sit up, as in case of rheumatism, the vapor bath may be used in a different way. Heat three bricks, so that they will vaporize water, but not burn the clothes; wrap them in flannel cloths wrung out of vinegar or water; place one near the patient's feet, another near the hip, and the third near the opposite shoulder. Have the bed-clothes loose over the patient, but tucked in around the neck to prevent the escape of the vapor. This can be continued as long as may seem necessary, and will be found a most effectual way of establishing secretion from the skin.

26. SPIRIT VAPOR BATH.—This is a favorite means of inducing perspiration with many physicians and families, but it must be used with care to prevent burning the

patient. Sit the person on a common wooden-bottomed chair, surrounding him with a blanket to prevent the escape of heat, and put his feet in hot water. Pour two or three ounces of alcohol, seventy-six per cent., in a saucer, and put under the chair, and set it on fire with a match or paper-lighter; when it is burned out, if necessary, withdraw the saucer, and add an additional quantity of alcohol, and proceed as before. It is called a vapor bath, but is, in fact, a *hot-air* bath, and bears a very close relation to the Turkish bath, so much talked of.

27. THE WARM BATH.—Warm water is used as a partial or general bath to induce perspiration, equalize the circulation, and lessen irritation. If a child is restless or feverish, I very frequently direct that it have an entire bath from fifteen minutes to half an hour, in water as warm as will feel pleasant to the hand. Any vessel sufficiently large to receive the child, will answer as a bathing-tub.

28. BLANKET PACK.—When there are no conveniences for bathing, I would direct, in case of an adult, that a blanket be wrung out of water, as warm as the hands can bear, wrap it closely around the patient, and pack him in bed, covering warmly. From half to one hour is the usual time for the person to remain in the pack, when he may be rubbed dry, or in some cases sponged with cold water.

29. WET SHEET PACK.—The wet sheet pack is employed to restore secretion from the skin, and is a most excellent remedy in many cases. The object is, by applying cold water, to establish reaction, relax the skin, and by the vigorous circulation induced, establish secretion from the entire sudoriferous glands of the body. It may be safely used with such persons as have sufficient power of reaction to become warm in a few minutes after its application, and is contraindicated in those of feeble reactive powers, and who have organic disease of internal organs, as of the lungs, heart, etc. I have used it to a considera-

ble extent, and, from my personal experience, would prefer it to any other means, to remove a severe cold and the feverish symptoms that attend it.

The pack is easily applied—wring a sheet out of moderately cold water, wrap it closely around the person, put him in bed, and cover warmly. The first sensations of chilliness are very unpleasant, but in a few minutes they are succeeded by an agreeable warmth of the surface; the irritation of the nervous system produced by disease disappears, and not unfrequently the patient sleeps. At the end of an hour, wipe the person dry with a coarse towel, using brisk friction, and put on dry clothing.

30. SITZ BATH.—The sitz or hip bath may be used either warm or cold, and will be found very efficient in diseases of the pelvic viscera and bowels. I very frequently direct the warm sitz bath in dysentery and diarrhœa, and in painful and difficult menstruation.

31. LOCAL BATHS.—Local baths may consist either in immersing the part in water of proper temperature, or in applying the water to the part by means of several thicknesses of cloth. They are employed principally in local diseases, for the relief of pain and inflammation, but they also exert a marked influence upon the general system. As examples of their use, we may cite the case of colic, or other pain in the bowels, in which relief is most effectually given by the application of a towel wrung out of cold water and applied; a case of sore throat, in which a towel wrung out of cold water, and applied to the throat at night, gives relief before morning. Very many times the local application of cold water in this way, the part being covered to prevent evaporation, will give very marked relief, and no injurious consequences can result. It is often far preferable to the use of costly liniments.

32. THE HOT FOMENTATION.—Hot fomentations are frequently ordered in acute inflammation, and other painful affections. Sometimes no other influence than that derived from the heat and moisture of the fomentation is

desired, at other times narcotics are used to deaden sensibility, and at others special agents which exert a favorable influence in modifying inflammatory action.

The *hop* fomentation is frequently prescribed. It is made by taking a sufficient quantity of hops to cover the part, simmer them in equal parts of vinegar and water enough to wet them, then stir in corn-meal to give it consistence.

The *stramonium* or *jimson-weed* fomentation, is one of the best that can be used in inflammatory and other painful affections. In the summer and fall, it may be made of the green leaves; in the winter and spring, of the dried leaves. Bruise the leaves with a hammer; put them in a shallow vessel over the fire, and moisten with water or whisky; place in a bag of thin muslin or mosquito bar, and apply hot.

Other agents are formed into fomentations in the same way, as the *tansy*, *hoarhound*, *catnip*, *lobelia*, etc. Again, we frequently use simple water, or equal parts of water and vinegar or whisky. Sometimes with the addition of tincture of stramonium, lobelia, veratrum viride, opium or other agents. In this case the liquid is placed by the fire where it will keep hot, five or six thicknesses of flannel or heavy muslin, of sufficient size to cover the part, being wrung out of it and applied hot. A good plan is to take two thicknesses of flannel, and quilt between them sufficient cotton wadding to make it, say one inch thick.

In using the fomentation it should always be recollected that continuous equable heat is of the greatest importance. Hence sufficient should be prepared to form two, so that while one is applied, the other may attain the requisite heat. Fomentations, as a general rule, require to be changed every five or ten minutes, and when so changed, the nurse should always be careful to do it speedily, and not expose the surface of the patient's body to the air. Upon the proper fulfillment of these directions, the value of fomentations as medicinal measures

depend, and where they are not carried out, this means, which in many cases is of the utmost importance, instead of doing good, actually aggravates the disease.

DIURETICS.

Diuretics are remedies that increase the secretion of urine, and may be very properly divided into two classes—those that increase the amount of water discharged, and those that increase the solid constituents of the urine. It might be supposed that any agent that would increase the amount of urine passed, would at the same time increase the solids of the urine which represent the excretion, but this is not the case. All the vegetable diuretics increase the amount of the urine, but very few of them increase the urea or other solid elements. Increase of the solids is best obtained by the administration of the diuretic salts, and these are the only agents that will prove effectual, when disease is produced by retention of these materials.

As we have heretofore noticed, the kidneys remove about an ounce of exceedingly deleterious material from the body every twenty-four hours. It can not be retained with safety, even in small quantities, and its elements, circulating in the blood, give rise to many morbid symptoms. Whenever disease terminates in health, we invariably find that the secretion of urine is very markedly increased, and experience tells us that the progress of disease may be arrested by such agents as will re-establish the secretion. In some cases, all we desire is to increase the quantity of water, with such increase of the solids as it will naturally wash away; hence we employ vegetable diuretics.

The secretion of urine may be *suppressed* to a greater or less extent, the kidneys failing to perform their function, in which case remedies are indicated that favor such secretion, or remove the cause of the arrest, if this can be

known. In other cases the urine is secreted, but *retained* in the bladder, in which case remedies that will promote its evacuation, and not increase the quantity, are the ones needed.

33. WATERMELON SEED—(*Cucurbita Citrullus*).—Watermelon seed made into an infusion, by adding a couple of tablespoonfuls of the bruised seed to a pint of water, is a very efficient and mild diuretic. It may be drank freely, and will increase the amount of water passed. It is sometimes beneficial in irritation of the urinary passages.

34. PARSLEY—(*Apium Petroselinum*).—The root of the common parsley, made in infusion, is a mild, unirritating diuretic, increasing the flow of urine and lessening its acidity.

35. MARSH MALLOWS—(*Althæa Officinalis*).—Marsh mallows is one of the simplest and best diuretics for family use, being demulcent and soothing to the stomach, and also to the urinary organs. It is given to increase the quantity of water when the urine is scanty, and to lessen irritation in cases of burning or pain in passing water. It is used in infusion, one ounce being added to a pint of boiling water, and drank freely when cool.

36. MULLEIN—(*Verbascum Thapsus*).—The leaves of the mullein made into an infusion will prove diuretic, and may be used in a similar manner to those above mentioned.

37. SPEARMINT—(*Mentha Viridis*).—Spearmint is an excellent diuretic in cases of scanty secretion of urine, with pain in the loins or region of the bladder, and in cases of burning and difficulty of passing water. It is used in infusion, being steeped in boiling water, and drank cold.

38. UVA URSI.—The uva ursi is a tonic and astringent diuretic, and is employed in cases of debility of the kidneys, and when there is mucous discharge from the urinary passages. Cases where it is indicated will usually be under the charge of a competent physician.

39. HONEY BEE—(*Apis Mellifica*).—In cases of retention of urine, we do not wish to increase the secretion of the kidneys, which would but add to the distention of the bladder, but desire to increase the power of the latter organ to expel its contents. Add twelve honey bees to half a pint of boiling water, and when cool give a table-spoonful every five minutes.

40. SWEET SPIRITS OF NITRE.—This remedy is, perhaps, more widely known and used than any other diuretic. It increases the amount of water secreted, and but slightly the solids. In some cases, it acts as a febrifuge, and relieves irritation. The adult may take it in doses of from one-fourth of a teaspoonful to a teaspoonful; a child two years old about ten drops, repeated every one, two or three hours.

41. ACETATE OF POTASH.—As a remedy to increase the amount of solids removed by the urine, there is no better agent than this. It does not generally increase the amount of water to any great extent, but the amount of urea is frequently doubled. It is one of the best remedies in persistent headache with which I am acquainted, and among our most efficient agents in the treatment of fever and inflammation. I also claim that it is one of the best *alteratives*, sometimes curing scrofula and similar diseases when other remedies fail. Add half an ounce of acetate of potash to four ounces of water, and take a teaspoonful every two or three hours. If you are far from a druggist or physician, and can not obtain it, take a table-spoonful of saleratus, and add enough cider vinegar to render it slightly acid, and the water to make four ounces; you will have a very good preparation, and may use it in the same doses.

42. CREAM OF TARTAR—(*Bi-Tartrate of Potash*).—Cream of tartar may be used as a diuretic in place of acetate of potash, though it is not so good. Add half an ounce of cream of tartar to four ounces of water, and take a teaspoonful every two or three hours.

43. HOT APPLICATIONS.—In cases of suppression of urine, a large flannel cloth, four or five thicknesses, wrung out of hot water, and applied to the back across the loins, will start the secretion when all internal remedies fail. I am positive in making this statement, as I have seen its beneficial effect in a large number of cases. In young infants who have not passed water, or who do not pass it freely, there is generally *retention* in the bladder. In these cases the warm cloths are applied over the lower part of the bowels and urinary organs. If there is retention of urine in the adult, we employ the hot sitz bath, or cause them to sit over the vapor of bitter herbs, as hops, tansy, etc.

SEDATIVES.

Sedatives are remedies that control irritation of the nervous system to some extent, and lessen the force and frequency of the heart's action. In fever and inflammation, if the finger be placed over the artery on the anterior and outer side of the wrist, it will be noticed to beat more frequently and with greater force. The blood is circulating with greatly increased rapidity, and as long as it does so, fever will continue. Sedatives are medicines which will lessen the frequency of the pulse, and diminish the momentum of the blood; and as they do this, they relieve the principal febrile symptoms, rapid circulation and increased heat, and place the system in such condition that secretion can be established from the skin, kidneys and bowels.

They are very strong medicines, as we should suspect, from the parts on which they act, and should be employed with care; if so, their use is no more dangerous than more simple things. In fact, all medicines must be employed with care, knowing what we are doing, and it would be well if it could be generally impressed upon the people, that they are dangerous things to tamper with. I will only name two of this class, and will here remark,

that when kept in the house, they should be so prominently marked that they can never be mistaken for any thing else, and always used in the exact way they are recommended.

44. **TINCTURE OF ACONITE ROOT.**—Aconite when taken in sufficient quantities is an irritant poison, and even when administered in the ordinary doses of the books, it does not possess any valuable properties. We give it in very small doses to obtain its most marked effect, and in these it is impossible to produce injurious results. We use it in all cases of fever and inflammation, and though its action is slow, it will most certainly control them.

In using it, take a common tumbler of cold water, one-fourth of a pint, and add ten drops of the tincture for a child two years old, twenty drops for a female or delicate person, or thirty drops for a stout adult; the dose being a teaspoonful every one or two hours.

45. **TINCTURE OF VERATRUM VIRIDE.**—Veratrum produces an influence very similar to the aconite, and may be used in its stead. If given in large doses it produces nausea, vomiting, and irritation of the stomach; in small doses it lessens the frequency and force of the pulse, and the heat of the skin, quiets irritation of the nervous system, and favors secretion from the skin and kidneys. I direct its use in the same manner as the other remedy. To a tumblerful of cold water, add thirty to sixty drops of the tincture, and give a teaspoonful every hour until the desired effect is produced. To a child two years old ten drops to a tumbler of water, in doses of a teaspoonful, would be the proper quantity.

In describing the *family medicine case*, equal parts of these are combined to form a febrifuge. Of all the remedies in the materia medica I prize these the most, and in recommending them for family use in slight, simple fevers, where a physician would not be called, I believe I am doing a great service to the people.

NARCOTICS.

Narcotics are remedies that lessen or arrest pain and induce sleep. There is but one true narcotic—opium—though there are many agents that will quiet pain by removing the cause, and by lessening pain and irritation, will induce sleep. As a general rule, opium and its preparations, should be given only under the direction of the family physician, as much injury may result from its improper use. Though one of the greatest boons to suffering humanity, its injudicious use in the form of Godfrey's Cordial, Bateman's Drops, Paregoric, and various cordials and quieters recommended for children, has carried millions to an untimely grave. Never, under any circumstances, give your child any preparation that contains opium, if it is possible to obtain medical advice. Though it may have passed unscathed ten or even a hundred times, you have not the experience that would determine when it would prove injurious.

To relieve pain and irritation, and induce sleep in infancy, some mild stimulating diaphoretic, as catnip or spearmint tea, often answers a good purpose. I have frequently prescribed—*R* Tincture of lobelia, one drachm; compound tincture of lavender, two drachms; simple syrup, two ounces; in doses of half a teaspoonful as often as necessary. Another very good preparation, is *R* Oil of anise, twenty drops; chloroform, forty drops; alcohol, half an ounce; simple syrup, one and a half ounces; the dose being half a teaspoonful every half hour or so, until relief is obtained. Quite frequently the use of the warm bath will answer the purpose, and at other times a hot flannel cloth applied to the limbs or back, will relieve the restlessness.

TONICS.

Tonics are medicines that increase the appetite, improve digestion, and favor better nutrition, thus increasing the

tone and strength of the body. In a majority of cases they are bitter substances, and some have even supposed that all bitters would prove tonic, but this is an error. Another class of agents that are with difficulty distinguished from tonics, are termed *restoratives*, as they add some material to the body that is deficient. Iron is the type of this class, and is one of the principal agents used to increase the quantity of the blood, it being a constituent of that fluid.

In general terms, it may be stated that any agent that will increase the appetite and power of digestion, will prove tonic. Thus remedies, that remove causes of disease, would be indirectly tonic in their action, as an emetic in cases of morbid accumulations in the stomach, cathartics in constipation of the bowels, diaphoretics and the use of baths when the skin is at fault, etc. It will not always do to take it for granted that because persons have a poor appetite and imperfect digestion, they require bitters. In very many cases, they not only do not need them, but the tonic and stimulant are absolutely injurious. The cause of the imperfect appetite should be ascertained by a competent physician, and medicines prescribed accordingly.

In some cases, however, bitter tonics can be taken with advantage without previous preparation. They are those in which there is no perceptible disease of any part of the body; the bowels are regular, there is good excretion of urine, and normal action of the skin, but the appetite is poor and digestion difficult.

46. YELLOW ROOT—(*Hydrastis Canadensis*).—Yellow root is one of our best bitter tonics, improving the condition of the stomach, giving the patient an appetite, and facilitating the digestive process. Under its use the patient eats more, digests his food sooner and better, and improves in strength and flesh. A very good bitters may be formed by adding one ounce of finely pulverized hydrastis to four ounces of whisky and twelve of water. It should be well shaken, and taken in doses of a tablespoonful three times

a day. If iron is needed, add to the preparation one drachm of carbonate of iron.

47. DOGWOOD—(*Cornus Florida*).—The dogwood bark is a very good tonic, and may be used either in infusion or a tincture made with alcohol or whisky.

48. WILD CHERRY—(*Prunus Virginiana*).—Wild cherry bark is another agent that may be used with advantage in some cases. It is employed in the same manner as the preceding, usually in combination with other articles of its class, and especially in cases where the lungs are affected.

49. POPLAR.—The bark of both the white and yellow poplar possesses tonic properties, and frequently form a constituent of home-made bitters. The three agents last named may be used in equal proportions, and will sometimes give good satisfaction.

50. COLLINSONIA.—The collinsonia is my favorite remedy in many of the cases requiring an agent to increase the appetite and digestion. Its action is gentle, but persistent, not only increasing the tone of the stomach, but strengthening the nervous system, and improving secretion from the skin, kidneys and bowels. I direct essential tincture of collinsonia and simple syrup, equal parts, a teaspoonful four times a day.

51. COMPOUND COLLINSONIA TONIC.—Take of essential tincture of collinsonia and simple syrup, equal parts, seven ounces; tincture of phosphorus, half an ounce; essential tincture of leptandra, one and a half ounces; citrate of iron, one drachm. This possesses, in addition to its tonic properties, phosphorus in a soluble form, for the nutrition of the nervous tissues, and iron to increase the red globules of the blood.

52. QUININE.—The active principle of Peruvian bark is the remedy that is principally used by all classes of physicians to arrest periodic disease. It has been used many times without either reason or common sense, and in combination with many deleterious medicines, and hence, in many sections of the country, it has fallen into disrepute.

In my practice, in not one case out of a hundred, does it produce any unpleasant symptom, not even ringing in the ears. The patient is always prepared for its use by getting the stomach and bowels in good condition, and arresting the excitation of the vascular system by sedatives, and means to promote secretion from the skin and kidneys. Employed in this way, its action is certain, as mild as any other agent, and it has entirely passed from the system in twenty-four hours.

As before remarked, diseases which manifest periodicity, are those in which it is indicated, and in which it proves a specific—as ague, bilious fever, intermittent neuralgia, and similar affections. As a general rule, the system being prepared for its administration, from twelve to fifteen grains will arrest the disease.

In the fevers of children, and typhoid fever, we employ it in small doses, after the action of the sedative, in order to stimulate the nervous system. Take quinine, five grains; aromatic sulphuric acid, twenty drops; simple syrup, two ounces: the dose being a teaspoonful every three hours to a child two years old.

53. IRON.—Iron, though in small quantity, serves a very important purpose in the animal economy. The red corpuscles possess but a minute quantity of this mineral, and yet without this they would lose their vital properties, and no longer give a normal stimulus to the body. In order to their formation, a certain quantity of iron is necessary, and experience has proven that if this is added to the blood in many cases, the red corpuscles will be increased in quantity; hence iron is the most efficient medicine in all cases of anemia. But a small quantity is necessary, and it may be taken in any of the many efficient forms in which it is found at drug stores. The carbonate of iron is its most common form, and this, added to Catawba wine, in the proportion of two drachms to the pint, will furnish the iron and an agreeable stimulus.

STIMULANTS.

Stimulants are medicines which produce a temporary increase of one or more of the vital functions. They act entirely upon the nervous system, and in some cases seem merely to call forth the force of the system, leaving it subsequently exhausted. In others, however, they seem really to increase nervous force, for if they did not, we would always have, as a result of their use, a depression corresponding with the primary excitation—which is not the case. Again, we may maintain a certain degree of stimulation for an indefinite period, by continuing the use of the stimulant, which we could not do, if it merely expended nervous force without causing a reproduction of it.

We must, however, carefully distinguish between *nervous* and *vital* force; for nervous force may exist in excess when the vital force, or that power that preserves life, is depressed. When there is failure in vital energy, no stimulant will serve to prolong life, for it can not communicate vital power. But death may be occasioned by more or less sudden arrest of nervous force, the body retaining all its capacity for living; in such case a stimulant calling forth the necessary nerve force to continue the different functions, will save life.

The first effect of a stimulant is that of topical excitant. When first taken into the stomach, they stimulate the mucous membrane and muscular coat to increased activity, and the food is more readily digested, and chylosis facilitated. This local stimulating influence is extended to every portion of the body by sympathy, and the whole system participates in the excitation. Absorbed into the blood they act directly upon the nervous system, and call forth increased innervation. As the result of this, the contractions of the heart are increased in force and frequency; the pulse becomes more energetic and frequent; respiration is accelerated; animal heat augmented; the countenance is enlivened, and the intellectual and physi-

cal powers increased. They produce a temporary exhilaration of mind, and revive and elevate the spirits—in a word, the phenomena of health are active when the system is under their influence, unless overpowered by disease.

This influence may be continued for some time, if the agents are used with care, and in many cases the system will have had time to regain its normal condition; if not, the vitality, or organs and parts acted on and stimulated, will gradually become exhausted, requiring a constant increase in the quantity of the stimulant to produce the desired effect, until at last they cease to respond to its action at all. Taken in excess, this effect is observed at a much earlier period, and in addition we have the inflammatory condition of the stomach, and some other parts, produced by the topical stimulation.

54. ALCOHOLIC STIMULANTS.—As a general rule, alcoholic stimulants should only be employed as continuous medicines, under the advice of a physician. In some cases they answer an admirable purpose, increasing the appetite and digestion, and stimulating better innervation, circulation, secretion and excretion. Still, as we have already noticed, their influence will at length be exhaustive, as the organs and entire system will require larger and larger quantities, until at length their influence is almost entirely lost.

As a temporary remedy in cases of exhaustion, Bourbon whisky or brandy may be given in such quantities as will restore normal action of the nervous system and circulation of the blood. When they are to be continued for a greater length of time, ale, porter and beer will answer a better purpose, and in many cases I prefer catawba wine, with the addition of sufficient simple sirup to render it pleasant. These stimulants may be used when there is no apparent structural or functional disease, further than an enfeebled circulation and innervation. If the debility is the result of disease of any organ or part, of

course the proper course of treatment would be to remove such disease.

55. CAMPHOR.—Camphor is a nervous stimulant, and may be employed when a temporary influence of this kind is desirable. Smelling a strong tincture will sometimes relieve nervous depression, giddiness, faintness and pain in the head, as will also bathing the face, head and neck with the same. A half teaspoonful taken internally, will relieve cramps in the stomach, colic and choleraic diarrhœa. As a local application, it may be applied in sprains, bruises, frost-bites, and whenever a local stimulant is desired.

56. TINCTURE OF PRICKLY ASH—(*Xanthoxylum Fraxineum*).—Tincture of prickly ash is an excellent stimulant, especially when the bowels are debilitated. It is used with advantage in cramps of the stomach, colic, cholera morbus, and Asiatic cholera, and in congestive diseases, as congestive chill, remittent fever, etc. The dose is from half to one teaspoonful in sweetened water as often as necessary.

57. CAPSICUM.—Capsicum is a powerful local stimulant, to whatever part it may be applied. Taken internally it produces a feeling of warmth in the stomach and bowels which is very persistent. Applied locally, it produces a feeling of warmth, and the part becomes red, full and warm, showing increased capillary circulation. It is one of the best agents that can be used in habitually cold extremities, bathing the parts once a day with the tincture pure, or diluted with one or two parts of water, being sufficient for the purpose.

58. COMPOUND TINCTURE OF CAJEPUT—(*Life Drops*).—Take equal parts of oil of anise, oil of cajeput, and oil of cloves, one drachm, alcohol two ounces, mix. This is the most valuable internal stimulant in exhaustive discharges from the bowels with which we are acquainted, and one of the most efficient in all cases where a prompt, diffusible stimulant is necessary. It is almost a specific in cholera

morbus, one of the best remedies in Asiatic cholera, and answers an admirable purpose in congestive chill and sun-stroke. In cholera morbus and cholera we give it in teaspoonful doses every few minutes, until reaction commences, when the dose is lessened. It quiets irritation of the stomach, and checks vomiting.

59. ARNICA.—Arnica is a very valuable local remedy for family use, but its internal administration should be under the care of a physician. We use arnica locally in all cases in which a part has had its vitality depressed by accident or disease. Bruising or contusion of the flesh, from whatever cause, demands its employment. It is generally used diluted with one or two parts of water, and applied by means of cloths kept saturated with it.

60. MUSTARD.—Mustard is a very valuable topical stimulant, and relieves internal pain and disease, by producing determination of blood and nerve force to the part to which it is applied. It is used with advantage in almost all cases of internal pain, applied in the form of the mustard plaster immediately over the part.

THE MUSTARD PLASTER.—I have frequently heard the remark, "Oh! anybody can make a mustard plaster," but my experience is that everybody does not know how. Thus in a very serious case, where I wished a speedy action from the mustard, I found, after waiting patiently for half an hour, that the patient had not felt the application. Upon questioning the nurse who was positive as to her ability to prepare the plaster, I received the answer: "an' dother dear, an' didn't I mix it with flour, it was so strong, and didn't I cover it with a cloth to keep it from sticking." And sure enough it had been made as dry as possible, so that it had not moistened the cloth interposed between it and the patient's body.

To make a mustard plaster *right*, take a sufficient quantity of ground mustard, make it into a *thin* paste, with cold or warm water, spread it on thin muslin so that it saturates it, lay another piece on top, and apply the wet side

to the patient. This will produce rubefaction in from two to five minutes; then remove, and if desirable, repeat when the burning sensation ceases. A speedy action is best, I think in all cases, hence I never direct additions of corn-meal or flour, except when treating children.

ALTERATIVES.

Alteratives are defined to be agents which change, in some inexplicable and insensible way, certain morbid actions and conditions of particular organs, or of the general system. They are administered to counteract certain morbid habits of the body, or cachectic states of the constitution, and to re-establish the healthy functions of deranged organs.

We suppose, from their known effects, that alteratives may act in the following ways: 1. They may change the condition of the blood by a direct influence exerted upon it after the absorption of the remedy. 2. They may in some manner effect the removal of the worn-out tissues, and favor the process of nutrition. 3. They may neutralize or change the character of decomposing or noxious agents that exist in the system, as the result of some pathological process, or that may have been introduced from without. 4. They undoubtedly favor elimination by stimulating the excretory organs to increased activity.

In many morbid conditions of the system, in which this class of agents is indicated, in addition to medicines, a change of air, diet, habits, scenery, employment, society, etc., will tend in a very marked manner to improve the mental and physical condition of the patient, and co-operate with the medicinal measures employed in restoring him to a state of health. The cold shower-bath, douche, alkaline or salt hand-bath, the medicated vapor-bath, etc., by keeping the skin in a healthy condition, and by their influence upon the nervous system, also become valuable auxiliaries to the remedies under consideration. In addi-

tion to these measures, especial attention should be paid to the regimen of the patient. A diet mild and unirritating in its character, easy of digestion, and nutritious, if taken in moderate quantities, will greatly contribute to the restoration of health; it furnishes the necessary quantity and quality of chyle for the formation of the blood, and thus acts as a healthy excitant to the vascular and nervous systems, furnishing healthy materials for the nutrition or renovation of impaired organs.

61. COMPOUND SYRUP OF STILLINGIA.—This is one of the most efficient vegetable alterative compounds that can be used. It stimulates normal action of all the excretory organs, improves the appetite, digestion, and assimilation. It may be taken in doses of from a teaspoonful to a tablespoonful, three or four times a day.

62. COMPOUND TINCTURE OF CORYDALIS—(*Scudder's Alterative*).—This is prepared of equal parts yellowdock, turkey pea, tag alder and may apple. It is an excellent alterative in scrofula, secondary syphilis, and other diseases of like character. The dose is one or two teaspoonfuls four times a day.

63. COMPOUND SYRUP OF SARSAPARILLA.—This is an official preparation, and is far superior to that furnished by patent medicine men. Its action is similar to the ones just named, taken in doses of a tablespoonful three times a day.

64. YELLOW DOCK, BURDOCK—(*Rumex Crispus*, *Arctium Lappa*).—Both of these agents are very good vegetable alteratives, and may be employed in cases in which such agents are indicated. The root is the part used, and it may be taken in infusion, syrup, or tincture, in doses of a wine-glassful of the first, and a tablespoonful of the others.

65. ELDER—(*Sambucus Canadensis*).—An infusion of the flowers of the common elder forms a very pleasant and effectual alterative for children, in scrofulous or skin diseases. They are slightly diaphoretic and laxative, and improve the appetite and digestion. The bark may be

employed for the same purpose in the adult, but must be used with care, as it is a cathartic. The bark of the root is a powerful diuretic, and may be used in dropsy.

66. AMERICAN IVY—FIVE FINGERS—(*Ampelopsis Quinquefolia*).—The bark of this vine is one of the most efficient alteratives we possess, both in scrofula and diseases of the respiratory apparatus. In old ulcers and chronic and obstinate eruptions upon the skin, the infusion taken internally and applied to the ulcer or surface, two or three times a day, effectually removes this disease.

67. BLACK COHOSH—(*Cimicifuga Racemosa*).—Black cohosh is not only used as an alterative, but is also one of the best remedies for acute and chronic rheumatism, and in female obstructions. The tincture is generally employed, and may be given in doses of half a teaspoonful four or five times a day.

68. IODIDE OF POTASSIUM.—This remedy is used to a very great extent by physicians in scrofula, syphilis, diseases of the skin, and, in fact, all diseases in which an alterative is indicated. In doses of from two to four grains, four times a day, it improves the appetite and digestion, and is a *specific antidote* to the poison of lead. To obtain its full alterative effects, it is given in doses of ten or twenty grains, in solution in water, or combined with alterative syrups or decoctions.

69. SYRUP OF IODIDE OF IRON.—This remedy possesses both alterative and tonic properties, and is especially adapted to delicate and feeble persons. The dose is a teaspoonful four times a day.

ASTRINGENTS.

Astringents are remedies which, when brought into contact with any portion of the body, cause a contraction or condensation of the tissues. Their use is confined principally to the arrest of excessive morbid discharges, and to weakened and relaxed conditions of the system. They are

used to arrest hemorrhage from any part of the body, to check diarrhœa, and excessive mucous discharges.

70. TANNIC ACID.—Tannic acid is the astringent principle of all the vegetable astringents, and may be obtained from any of them. It is used in diarrhœa, and hemorrhage from the stomach and bowels, in doses of five or ten grains.

71. GALLIC ACID.—This remedy is very closely related to the one just named, but differs from it in not being a topical astringent, but readily soluble in the secretions of the stomach, from which it is absorbed and carried into the blood. It is one of the best remedies in cases of hemorrhage that we possess, though worthless to check diarrhœa. It may be given in doses of five grains, as often as seems necessary.

72. OAK BARK.—The various species of oak bark are decidedly astringent, and may be used for this purpose in many cases where other agents can not be obtained. It is prepared for use by adding two tablespoonfuls of the bark (white oak is best), to a teacupful of boiling water; when cold, it may be given in doses of a tablespoonful every one or two hours.

73. CRANE'S BILL—(*Geranium Maculatum*).—This is a mild but efficient astringent, and may be employed to check diarrhœa, and in hemorrhage. One ounce of the root is added to one-half pint of boiling water, strained when cold, sweetened, and given in doses of half a wine-glassful every one or two hours.

74. CATECHU.—Catechu will be found prepared in the shops in the form of tincture, which is frequently used in diarrhœa, in doses of a teaspoonful every one or two hours.

75. LOGWOOD—(*Hæmotoxylon*).—Logwood is a mild, un-irritating astringent, and adapted to diarrhœa and dysentery. An infusion of the bark may be made and taken in doses of a tablespoonful, or one drachm of the extract

may be dissolved in half a teacupful of boiling water, and taken in teaspoonful doses every one or two hours.

76. BLACKBERRY — (*Rubus Villosus*).—Blackberry root made into an infusion, cordial or syrup, is a pleasant and mild astringent, and is used to check diarrhœa. The leaves of the *red* raspberry may be used for the same purpose, and will be found an excellent remedy with children.

77. WILD INDIGO—(*Baptisia Tinctoria*).—This agent is but slightly astringent, and I speak of it here more especially as a remedy to check fermentation in the bowels, and relieve irritation. It is one of the best, if not the best, remedy for sore mouth in children, especially if there is ulceration; it will relieve those cases of diseased stomach in which the tongue is heavily coated, the breath fetid, and the appetite and digestion poor. Add a tablespoonful of the bark to half a teacupful of boiling water, strain when cold, and give in doses of a teaspoonful every one or two hours.

78. NEUTRALIZING CORDIAL.—This is prepared by taking the compound powder of rhubarb, heretofore spoken of, eight ounces; oil of cinnamon and erigeron, equal parts, one fluid drachm; alcohol, half a pint; water, two pints; sugar, two pounds. Infuse the powder in the water (boiling), express and strain, then heat the liquor, dissolve the sugar in it, and, while cooling, add the alcohol and oils previously mixed.

I introduce this here, not because of its direct astringent action, but because it is one of the best remedies that can be kept in the house for common diarrhœa and derangement of the stomach and bowels. The dose for a child three years old would be about a teaspoonful every one or two hours; for an adult, a tablespoonful. It should be continued until the stools become dark, resembling the color of the medicine; afterward give in small doses.

ANTISPASMODICS.

Antispasmodics are remedies which counteract spasm, by relieving the conditions upon which it depends. Spasmodic action depends upon irritation of the nervous centers, either from excitation and determination of blood to them, or from some irritation of a distant part of the body, which is transmitted by the nerves to their origin. Thus, in one case, we will have convulsions from disease of the brain and spinal cord, in another from teething, irritation of the stomach, or worms.

Of course, as the cause of spasm differs in different cases, the remedies used to combat it will differ. Thus, if spasms are induced by eating too freely of green fruit, an emetic will be the surest remedy; if from worms, we give vermifuges, and if from determination of blood to the brain and spinal cord, we use such means as will arrest the irritation. I will name but three agents of this class:

79. *ASSAFŒTIDA*.—This fetid gum-resin is a stimulant to the stomach and bowels, relieves pain and flatulence, and quiets irritation of the nervous system. It may be given in the form of a pill to the adult, but the child will take the tincture best, the dose being from one-fourth to one teaspoonful as often as necessary.

80. *LOBELIA*.—Lobelia is a powerful antispasmodic, producing relaxation of the entire system, and quieting nervous irritation. We usually employ it in the form of the *antispasmodic tincture*, a tincture of equal parts of lobelia, capsicum and ictodes. To a child two years old, I would give one-third of a teaspoonful in sweetened water every five or ten minutes until the spasms had ceased; if it could not be taken by mouth, add two teaspoonfuls to half a teacupful of warm water and use it as an injection.

81. *GELSEMINUM*.—Gelseminum is a powerful relaxant and antispasmodic, and should be used with great care. I employ it principally to prevent the occurrence of spasms

in diseases of children. If I notice twitching of the mouth and fingers, or extreme restlessness and contraction of the face, I order tincture of gelseminum, ten drops every one or two hours to a child two years old, and feel confident it will give speedy and certain relief. It may be employed for the relief of convulsions in the same doses every few minutes.

EXPECTORANTS.

Expectorants are remedies that increase or facilitate expectoration of mucus from the air passages, and thus relieve cough, difficult breathing, and other symptoms that attend disease of the respiratory apparatus. They may do this by allaying inflammation of the mucous membrane, which, in its first stages, always diminishes the normal secretion of mucus, or by stimulating this membrane when relaxed, causing an increased flow of blood to it, and increased action of the mucous follicles, by rendering it thinner and less viscid, enabling the patient to bring it up; or lastly, by exciting an action of the respiratory muscles, causing an evacuation of mucus already secreted, as in the act of coughing or vomiting.

Expectorants may be divided into three classes: those that produce nausea and relaxation, and increase the secretion of mucus—*nauseant expectorants*; those that quiet irritation of the nerves distributed to the air passages—*demulcent* and *narcotic expectorants*; and those that stimulate the mucous membrane and check its secretion—*stimulant expectorants*.

If cough, pain, or difficult breathing is attended by dryness of the mucous membrane, or scanty secretion, the first class of agents are appropriate. If there is a tickling sensation in the throat or any part of the air-passages producing cough, there being sufficient secretion, we would use the second class. But, if considerable quantities of mucus was raised, and the cough seemed for the purpose

of removing it, then the third class of remedies, that diminish the secretion, should be used.

82. COMPOUND SYRUP OF LOBELIA.—Take of lobelia herb, four ounces; bloodroot, two ounces, and macerate them in two pints of vinegar for one week; then strain with pressure. Take pleurisy root, four ounces; Solomon's seal, two ounces; cover with boiling water and keep hot one day, adding water so that when strained, two pints shall be obtained. Put both in a vessel, bringing the liquor to a boil, and add three pounds of loaf sugar.

This will make a more efficient expectorant of the first class than can be obtained at the stores. It relieves cough, and is very efficient in croup, and in all cases where it is desirable to increase secretion from the air passages. It is also an excellent diaphoretic, and may be used in all cases of cold.

Any of the nauseant emetics may be used as expectorants, as the ipecacuanha, lobelia, sanguinaria, eupatorium, etc.; and temporary preparations may be made by combining their tinctures or sirups.

83. COMPOUND TINCTURE OF OILS OF STILLINGIA AND LOBELIA.—Take oil of lobelia, one drachm; oil of stillingia, oil of cajeput, equal parts, two drachms; alcohol, 98 per cent., two ounces, mix. This is the remedy, par excellence, for mucus and spasmodic croup, and should be kept in every family where the children are predisposed to this disease. We give it internally, one drop on a lump of sugar every quarter, half, or one hour, and at the same time apply it freely to the throat externally. In chronic bronchitis, laryngitis, and many chronic coughs, it will be found a most excellent remedy in doses of one or two drops on sugar, every three or four hours. It should be taken without water or other fluid, letting the sugar dissolve in the mouth and swallowing slowly.

Almost any demulcent will quiet cough, when it depends upon irritation of the nerves. Thus, we make a solution of gum-arabic, or isinglass, sweeten it with loaf

sugar, and slightly acidulate with lemon juice or vinegar, and let the patient take it frequently; or, we direct equal parts of vinegar, sugar and butter, with boiling water, to make a stew. Sometimes a portion of liquorice, dissolved in boiling water, and sweetened with sugar or honey, answers an excellent purpose.

84. SYRUP OF ELECAMPANE.—Take of elecampane, spike-nard, equal parts, two ounces; sun-flower seeds, bruised, one ounce; macerate them in boiling water for twenty-four hours, strain with pressure, to make one pint, and add sugar to form a syrup. This may serve as the type of the second class of expectorants, and if desired it may be rendered slightly narcotic by the addition of paregoric, one or two ounces. The dose is from a tea to a table-spoonful, as often as may seem necessary.

85. STIMULANT EXPECTORANT.—Take syrup of senega, syrup of squills, syrup of balsam tolu, glycerin, equal parts, one ounce; mix. This may be taken as a type of this class of expectorants, and will possibly answer as well as any other combination. The dose would be a tea-spoonful every two or three hours.

86. INHALATIONS.—Inhalation of the vapor of various articles has been much used lately in the treatment of diseases of the lungs. With the exception of two, they should always be used under the care of a reputable physician, as a person's lungs are equivalent to his life, and too important to be tampered with by quacks and mountebanks.

In cases of dryness of the air passages, constriction, and difficult breathing, much benefit will be experienced by inhaling the vapor of boiling water, water and vinegar, or vinegar alone. In the early stages of all acute diseases of the air passages, this will prove very effectual, but is especially beneficial in croup. The inhalation is easily used. Place a covered tin vessel on the stove or fire, and bring the water or vinegar to the boiling point, take it to the bedside, and let the patient hold his head over it at a rea-

sonable distance; throw something over the person's head and the vessel to retain the steam; then lift the cover and let the vapor escape. It may be continued for a considerable length of time by slowly immersing a hot iron in the fluid.

LINIMENTS.

Almost every family makes more or less use of liniments for bruises, sprains, pains in various parts of the body, etc. I will give formula for such preparations as I deem best for domestic use, premising that all the liniments and pain killers that flood the market are tinctures of essential oils, or stimulants. You could hardly go amiss in making a liniment, if you would take one or more of oils of sassafras, hemlock, origanum, cloves, pepper, mustard, etc., using sufficient alcohol to cut them.

87. **FOR INTERNAL OR EXTERNAL USE.**—Take oil of hemlock, oil of sassafras, oil of cloves, each two drachms; camphor, half an ounce; alcohol, 76 per cent., one pint; mix. This will give you a valuable stimulating liniment, and an excellent internal stimulant in cases of colic, cramps of the stomach, cholera morbus, etc. A teaspoonful would be an appropriate dose internally.

88. **CHLOROFORM LINIMENT.**—Take equal parts of chloroform, tincture of aconite and tincture of opium, $\frac{3}{4}$; mix. It is the best local application for neuralgia that can be employed, and may be used in all cases of acute pain. It is an excellent remedy in toothache, applied to the cavity on a pledget of cotton.

89. **VOLATILE LINIMENT.**—Take strong aqua ammonia, one ounce; olive oil, two ounces; mix. An excellent stimulant application in cases of rheumatism, or pain in any part of the body. It should be applied by wetting a flannel cloth with it, and covering to prevent evaporation. It soon produces redness of the skin, and will sometimes vesicate.

OINTMENTS.

90. **MAYER'S OINTMENT.**—For common use in families Mayer's Ointment will answer a better purpose than any other. It is an excellent application to ulcers, inflamed breasts, sore nipples, and as a discutient in scrofulous swellings.

91. **ELDER OINTMENT.**—In the country I should advise the preparation of this ointment to take the place of all similar preparations. Take of the inner bark of the common elder a sufficient quantity, cut it fine, and put in a tinned vessel; cover the bark with fresh butter, and keep hot for six hours; now strain, and add pulverized camphor, one ounce to each pint of ointment. Nothing will be found to equal this preparation in milk scall, sores behind the ears, and on the neck of children, as a dressing for ulcers, boils, sore nipples, and in any case where a gently stimulating and soothing application is needed.

EMOLLIENTS.

Under this head we may include all those external applications that are employed for the purpose of softening and relaxing the part to which they are applied. They diminish the tension of the tissues, and soften and render more flexible the solid parts of the body. When oils, ointments, lard, etc., are applied to parts that are tense and resisting, they lessen cohesion, soften and relax the tissues, and many times prove very valuable. The same may be said of poultices, which soothe irritation, relieve inflammation, and are of great utility in relieving pain and promoting resolution.

Poultices are very important local applications in bruises, sprains, injuries, painful tumors, superficial or deep-seated inflammations, painful ulcers, etc. In the early stage of circumscribed inflammatory affections, these remedies are found to be of the greatest utility in effecting a dispersion

of the diseased action, and thus preventing suppuration and destruction of tissues. If, however, the period has passed during which they can prove beneficial as resolvents, they will still be found valuable, to relieve irritation, lessen pain, soften and relax the tissues, and promote suppuration and an early discharge of the purulent material. Their action depends in great part, upon the moisture they contain, and upon their shielding the surface from the action of the air.

WATER AS A POULTICE.—Water properly employed, forms one of the most efficient and cleanly of these applications, and as it may be medicated to any extent, it may be employed in almost all cases when a poultice is desirable. I direct its application in the following way: Take a soft towel, or cotton flannel folded several thicknesses, wet it in tepid or warm water, and apply to the part, covering with oil-silk, oil-cloth, or two or three thicknesses of flannel, to prevent evaporation. It may be renewed from time to time without removal, by removing the external wrappings, and wetting it with warm water. We derive all the advantage from it that we could from any simple poultice, inasmuch as it keeps the part continuously moist, and excludes the atmosphere. The main recommendations are, that it is cleanly, is easily prepared, easily renewed, there can be no decomposition, no retention of matter in contact with the skin, and an avoidance of all unpleasant odors.

As already remarked, this application may be medicated with any remedy that is deemed desirable. If we wish to use stramonium or *jimson-weed*, we boil the leaves, and employ the decoction; if we wish a hop poultice, we make a decoction of hops, and use in the same way, and so with other agents. Or, we may medicate the water by the addition of a suitable quantity of a tincture to it, as of opium, aconite, arnica, belladonna, stramonium, hops, etc. Usually from one to four ounces of these tinctures to a pint of tepid water, will be the proper proportion.

BREAD AND MILK POULTICE.—This is a very good application in minor cases, in boils, felons, inflamed wounds, etc. Take of soft, dry bread, a sufficient quantity, crumb it fine, and add milk slowly, stirring it all the time, until it is of proper consistence. As decomposition of the bread and milk takes place very rapidly, it should be renewed every three or four hours.

SLIPPERY ELM POULTICE.—Take of finely powdered slippery elm a sufficient quantity to form a poultice at least half an inch in thickness; mix with tepid water until it forms a thin paste, but not so that it will run when spread on a cloth. It should be renewed sufficiently often so that it will not become dry and adhere at the edges, which is very unpleasant in many cases. If powdered elm can not be obtained, take the green or dried bark, and macerate with hot water until it forms a thick mucilage, which may be spread on a cloth and applied, or it may be thickened with flax-seed, wheat-bran or flour.

FLAX-SEED POULTICE.—Take of ground flax-seed a sufficient quantity, and mix to the consistence of a paste, with hot water. It does not become dry, like other poultices, and hence is preferable when it can not be frequently changed.

HOP POULTICE.—Take of hops a sufficient quantity, cover them with boiling water, and let the vessel stand where it will keep hot for an hour, adding more water as it evaporates. Now strain through a coarse towel with considerable pressure, and thicken with wheat-bran or corn-meal. It may be applied hot or cool, as may be indicated, and is an excellent soothing application in all cases of inflammation.

DOGWOOD POULTICE.—Take of dogwood bark a sufficient quantity to make a strong decoction, add boiling water, and let it stand where it will keep hot for two hours. Now strain through a stout towel, and thicken with wheat-bran. It is one of the best applications that can be made to an abscess when it is discharging; to ulcers,

erysipelas, and in any case where we wish to obtain the influence of a poultice, and at the same time increase the tone and vitality of a part.

ONION POULTICE.—Onions form an excellent poultice in diseases of the chest, croup, inflammation of the bowels, and other cases of deep-seated disease in children. The onions may be either stewed or roasted until they are soft, and then beat to a pulp and applied.

POTATO POULTICE.—Take of large, fully ripe potatoes, a sufficient quantity, boil them with the skins on until they are mealy; remove the skins, mash them, and give the proper consistence by the addition of milk or warm water. It forms the best poultice I have ever used, in all cases of skin disease, where a remedy of this kind is needed to remove irritation.

FAMILY MEDICINE CHEST.

Every family should keep such remedies in the house as will answer in trivial cases, and in the more severe ones, if a physician can not be obtained. The herbs and crude medicines that I have described, should be gathered in the summer and fall, carefully dried and put away in a cool, dry place, having each one properly marked. It is very little trouble to obtain a supply of pennyroyal, catnip, boneset, etc.; or even the rarer roots, yellowroot, may apple and bloodroot. In addition to these, a few remedies, carefully prepared by a competent pharmacist, properly labeled, with a small graduated glass, marking drops, should be obtained. It will be found much cheaper to keep such remedies in the house, and know how to use them properly, than to be continually taking patent medicines. Though I should always advise sending for a physician at the commencement of a disease, still many persons will doctor themselves as long as they can to save expense; such should carefully study the symptoms of

disease, to know when a physician was necessary, and when he could be dispensed with.

I propose a medicine case of two sizes, large and small, to contain the following articles; the numbers refer to previous description of the agents:

SMALL CASE.

- 45. Febrifuge—Tincture of Aconite and Veratrum, equal parts, one ounce.
- 81. Antispasmodic—Tincture of Gelseminum, one ounce.
Prophylactic for scarlet fever, etc.—Tincture of Belladonna, half an ounce.
- 83. Tincture of Oil of Stillingia and Lobelia, half an ounce.
- 58. Life Drops, one ounce.
- 7. Compound powder of Rhubarb, one ounce.
- 12. Podophyllin Pills, one-fourth of an ounce.

The above remedies can be put up in a neat box with small graduate, for \$4.00, and will last a common sized family one or two years.

For a large medicine case, I would propose to double the amounts of each of the remedies named for the small, and would add:

LARGE CASE.

- 41. Saturated Solution Acetate of Potash, - two ounces.
- 6. Emetic Powder, - - - - - two ounces.
- 8. Compound powder of Jalap, - - - two ounces.
- 23. Diaphoretic Powder, - - - - - one ounce.
- 50. Tincture Collinsonia, - - - - - two ounces.
- 67. Tincture Black Cohosh, - - - - - two ounces.
- 70. Tannin, - - - - - half an ounce.
- 77. Wild Indigo, - - - - - one ounce.
- 52. Quinine Pills, - - - - - half an ounce.

This would cost, with neat box, lock and key, and two graduated glasses, \$10.00, and would be all the medicine needed for domestic practice, for a great length of time.

DIETETIC PREPARATIONS.

Good nursing for the sick is of as much, if not of more importance than taking medicine, and one of the important parts of good nursing is careful attention to the diet. If a physician is in attendance, he will, in all probability, give directions as to the kinds of food proper to be administered; and yet, if these are improperly prepared, they may do more harm than his medicine does good. Unfortunately, however, many physicians do not know, and can not, therefore, give intelligible directions for the diet of the patient, and it is left entirely to the discretion of the nurse.

Food is necessary in all diseases, to supply the materials for the repair of the tissues, and the production of animal heat. If no food is taken, the sick person will starve to death as soon, if not sooner, than if it was withheld in health. Few persons look at it in this light, and even physicians wonder that their patients die when they have kept their stomach and bowels in such condition that no food could be digested for two or three weeks. Though food is necessary, there are times at which it can not be given with advantage, and in all cases it must be selected with reference to the condition of the patient, and given in such quantities as may be easily digested.

It is difficult to lay down strict rules for the guidance of the nurse with reference to the kind and quality of the food to be given, and the proper period of the day when it is best appropriated. The following general rules will serve to guide the nurse to some extent, but much will be left to the good judgment of the medical attendant:

1. Solid food should rarely be given during the progress of an acute disease, as the stomach and digestive organs are not in a condition to furnish the fluids necessary for its proper comminution, and hence it does not digest, but decomposes, giving rise to irritation and other annoying results.

2. As a general rule, the severer the disease, and the farther the system is from a condition of health, the lighter and more diluted should be the food. Thus, in a high grade of fever or inflammation, we would give *whey*, toast-water, thin farina or tapioca, weak chicken or mutton broth, etc.

3. In states of great exhaustion, the food should be concentrated, very nutritious, and yet deprived, as far as possible, of all material that can not be appropriated by the stomach. Thus we would give beef essence, concentrated chicken or mutton tea, farina, with milk, etc.

4. In all febrile and inflammatory diseases, the food should be given at that period of the day in which there is least vascular and nervous excitement, and it should never be forced on the patient when suffering from high fever.

5. Never give food when the patient is suffering from severe pain, as at such times it is impossible for the digestive organs to appropriate it.

6. If the tongue is heavily coated with a yellowish coat, a bad taste in the mouth, and a feeling of weight and oppression at the stomach, it is better not to give food, or at least give it in a fluid form and in small quantity.

7. Never force food on a patient when his stomach revolts at it, or if it produces nausea, oppression or pain. It is much better to wait until medicine or time has placed the stomach in condition to digest it.

8. When the digestive powers are much impaired, and it is important to give food to sustain the strength, it should be given in small quantities, and at regular intervals like medicine.

9. If there is an absolute demand for nourishment to sustain the strength of the patient, and it cannot be given by mouth, it is sometimes an excellent plan to administer it as an injection.

10. Much care is necessary during convalescence from disease, that the patient does not eat too much, or that

that is indigestible. The digestive organs are now enfeebled, and if over-worked, there is not only an excess of imperfectly elaborated material taken into the system, but the exhaustion is extended to the entire system, and impairs the functions of other organs and parts.

GRUEL.—Thin corn-meal gruel is an excellent diet drink in many diseases, but especially in small-pox and the eruptive fevers, and in acute disease of the respiratory apparatus. Put a pint of water on the fire, slightly seasoned with salt, and when boiling briskly, sprinkle in two tablespoonfuls of corn-meal, stirring it continuously until done, usually about five minutes. It is best when warm, and should be made frequently. Oat-meal gruel may be made in the same manner, and used in similar cases.

TOAST AND WATER.—Cut a large slice of wheat bread, toast it evenly, and nicely brown, and put in a covered earthen-ware vessel and cover with boiling water. It will be ready for use in half an hour, and forms a very light and acceptable drink in acute diseases.

JELLY WATER.—Stir a tablespoonful of currant or other jelly into half a pint of water, keep it cool, and give as occasion requires, to remove the bad taste from the mouth. It answers an excellent purpose in fevers, being very grateful to the sufferer.

BARLEY WATER.—Wash clean two ounces of pearl barley, put it in a vessel with a quart of water, and boil slowly to one-half. It may be seasoned to suit the fancy of the patient, with lemon peel, catawba wine and sugar, spices, etc.

GUM-ARABIC WATER.—To an ounce of gum arabic, add a pint of boiling water, and stir until dissolved. In many cases it is permissible to render it slightly acid with lemon, and to sweeten with loaf sugar. It is an excellent drink in acute diseases when the soothing influence of a demulcent is desired.

WHEY.—Whey is very readily formed of fresh milk, by the addition of *rennet* water, catawba wine or vinegar.

Stir it in, set it in a warm place till the curd is formed, and has separated from the whey beneath; remove the curd carefully and the whey is ready for use. There is no better drink for the sick than this, when it is not deemed necessary to give warm fluids, as it is well borne by the stomach, refreshing to the patient, and affords considerable nutriment.

APPLE WATER.—Take three or four large, juicy apples, cut them in quarters, and bake them until thoroughly done and soft. Put them in an earthen pitcher, and pour on a quart of hot water, then let it stand where it will keep hot for half an hour, when it will be fit for use. It may be sweetened with loaf sugar if necessary, and if admissible flavored to suit the taste of the patient. It should be given cold.

FARINA GRUEL.—Heat a sufficient quantity of water, and when boiling sprinkle in sufficient farina to give it the desired consistence. Sweeten it with sugar, and if desirable add a small portion of brandy, rye whisky or wine. It is an excellent light diet in acute diseases, and in the diseases of children.

TAPIOCA.—Take three heaping tablespoonfuls of tapioca and wash it well in cold water; drain it, and pour on sufficient water to cover it, and let it soak for four hours. Now add as much more water and boil it until it looks quite clear, and flavor it to suit the taste of the patient, always having reference to the character of the disease. Sago may be prepared in the same way.

SAGO, MAZINA, OR TAPIOCA PUDDING.—Add three tablespoonfuls of sago, mazina or tapioca to a pint of milk, and boil it until quite soft, adding gradually three ounces of white sugar. Now set it aside to cool, and having beat up three eggs, stir them by degrees into it, flavor with nutmeg, and bake in a deep dish.

EGG AND MILK.—Take a fresh egg and boil for one minute; break it into a tumbler, and add half a teacupful of hot milk, and stir briskly until they are thoroughly mixed

Seasoned with salt, this forms a most excellent, light and easily digested food in many forms of disease, but especially during convalescence.

EGG WINE.—Break a fresh egg into a tumbler, and beat it until smooth and thick. Now add a teaspoonful of sugar and an ounce of Catawba wine, and one or two ounces of boiling water. This forms an excellent stimulant and restorative in cases where wine is indicated, and where the egg can be digested.

BRANDY AND EGG.—Take a fresh egg, break it in a shallow dish, and beat it until smooth and thick. Now add a table spoonful of brandy, and four tablespoonfuls of boiling water, and mix thoroughly. This forms one of the most valuable preparations that can be used, in cases of great prostration, as it furnishes a concentrated article of food in a pleasant form, and at the same time the necessary stimulant.

BRAN GRUEL.—Take of new wheat bran one pint, add six pints of boiling water, boil to four pints, strain, and add sugar, sirup, honey, lemon juice or aromatics to render it agreeable to the taste. It is demulcent and nutritious, easy of digestion, and useful in colds, and febrile and inflammatory affections.

MALT GRUEL.—Take ground malt one pint, boiling water three pints. Infuse the malt in the water for two hours, strain and sweeten, adding lemon juice or aromatics if desired. It is valuable in fevers and inflammations, as a diluent, and is a mild, unirritating and nutritious article.

RICE GRUEL.—Take of ground rice half a teacupful, add water two pints, boil for one hour, strain, and add nutmeg, cinnamon or wine and sugar to suit the taste. This forms an excellent diet drink in acute diseases, and in cases of great exhaustion when stronger food cannot be taken.

PANADA.—Take two or three slices of dry wheat bread, toast it slightly and crumb it into a bowl. Season it with nutmeg, cinnamon or other spice to suit the taste, and pour on it a pint of boiling water, and if not objectionable, a

tablespoonful of best brandy or whisky. It forms an excellent and pleasant diet for the weak and prostrate patient, and digests easily and quickly.

FLOUR GRUEL.—Make a linen or muslin bag holding a pound of flour, fill it with wheat flour and boil for several hours or until it forms a hard mass. Of this two or three tablespoonfuls may be grated into half a pint of new milk and the same of water, or into water alone if the milk is objectionable, and let it boil for a few minutes. It may be seasoned with any spice, and forms an excellent substitute for arrow root, tapioca or sago. It is a good diet in the bowel complaints of children, chronic dysentery and diarrhoea, and in many weakened and irritated states of the stomach and bowels.

BEEF TEA.—Take of lean beef, freed from fat, a pound; put it in a vessel over a slow fire and pour in it two pints of boiling water. Let it boil for half an hour, removing any scum that arises, add the necessary salt and pepper, and strain off the liquor before it gets cold.

ANOTHER.—Take of nice beef steak cut thin, half a pound, put it on the gridiron over coals, and broil until each side is slightly roasted. Now place it in a tin vessel and pour on it half a pint of boiling water, cover it and let it stand where it will keep warm for half an hour.

I prefer the latter method of making the beef tea, but either will give an excellent preparation, highly nutritious and easy of digestion. It is employed in low states of the system before solid food is admissible, and is of great value in the advanced stages of many diseases.

BEEF ESSENCE.—Take of lean beef, without fat, cut it in small pieces and put in a stout glass bottle. Suspend it in a vessel of water and boil for four hours, then strain off the liquor and season with salt. This furnishes the largest amount of nourishment in the smallest compass, and is employed in low forms of fever, and other diseases attended with great prostration.

MUTTON BROTH.—Take two pounds of neck of mutton,

cut it in pieces, and cover it in the vessel with three pints of water. Boil it till the meat is in rags, strain off the liquor and season to the taste. It is an excellent preparation for the sick, especially in diseases of the bowels.

CHICKEN BROTH.—Take of the dark meat of a chicken, the wings, legs, thighs and neck, pour on them a pint of water, and boil gently for thirty minutes, seasoning with salt only. It is lighter than either of the preceding, and may frequently be eaten with stale bread.

OYSTER SOUP.—Take half a dozen oysters, cut out the gristle, and put them in a stew pan with a teacupful of equal parts of milk and water, boil for five minutes and strain off the liquor, seasoning with salt, and pepper if admissible.

PART IV.

MANAGEMENT OF ACCIDENTS AND INJURIES, AND SURGICAL DISEASES.

Every person should be so well acquainted with the anatomy of the body, that he will be enabled to determine the nature of the more common accidents, and adopt such treatment as may be necessary, before a physician or a surgeon can be obtained. This knowledge is given in the chapter on anatomy and physiology. In addition to this, presence of mind is requisite to bring to bear this knowledge, and adopt such rational expedients as may be demanded by the case. I have often been surprised at the extreme ignorance manifested in such cases, whereby great suffering or loss of life was entailed upon the sufferer. A person receives a cut, and is allowed to bleed until almost exsanguined, the persons near trying to staunch the blood with flour, sugar, etc., or in other cases, applying a ligature to the limb so tightly, as to arrest the venous circulation, and almost endanger its vitality. A limb is broken, and often times the sufferer is moved considerable distances without any support to the limb, the broken extremities of bone piercing and tearing the flesh at each movement. In all such cases, I would advise you to keep cool, and use your common sense and judgment until better assistance can be obtained.

Directions for Restoring the Apparently Dead.

I. IF FROM DROWNING OR OTHER SUFFOCATION, OR NARCOTIC POISONS.—Send immediately for medical assistance, blankets and dry clothing; but proceed to treat the patient *instantly*, securing as much fresh air as possible.

The points to be aimed at are, first and immediately, the restoration of breathing; and second, after breathing is restored, the promotion of warmth and circulation.

The efforts to restore life must be persevered in until the arrival of medical assistance, or until the pulse and breathing have ceased for at least an hour.

TREATMENT TO RESTORE NATURAL BREATHING.

RULE 1.—*To Maintain a Free Entrance of Air into the Windpipe.*—Cleanse the mouth and nostrils; open the mouth; draw forward the patient's tongue, and keep it forward: an elastic band over the tongue and under the chin will answer this purpose. Remove all tight clothing from about the neck and chest.

RULE 2.—*To Adjust the Patient's Position.*—Place the patient on his back on a flat surface, inclined a little from the feet upward; raise and support the head and shoulders on a small, firm cushion, or folded article of dress placed under the shoulder-blades.

RULE 3.—*To Imitate the Movements of Breathing.*—Grasp the patient's arm just above the elbows, and draw the arms gently and steadily upward until they meet above the head (this is for the purpose of drawing air into the lungs), and keep the arms in that position for two seconds. Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest (this is with the object of pressing air out of the lungs.) Pressure on the breast-bone will aid this.

Repeat these measures alternately, deliberately, and perseveringly, fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which, cease to imitate the movements of breathing, and proceed to induce circulation and warmth (*as below.*)

Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate the movements of breathing. Raise the body in twenty

seconds in a sitting position, and dash cold water against the chest and face, and pass ammonia under the nose. The patient should not be kept in the warm bath longer than five or six minutes.

RULE 4.—To Excite Inspiration.—During the employment of the above method, excite the nostrils with snuff or smelling salts, or tickle the throat with a feather. Rub the chest and face briskly, and dash cold and hot water alternately on them.

* * * The above directions are chiefly Dr. H. R. Silvester's method of restoring the apparently dead or drowned, and have been approved by the Royal Medical and Chirurgical Society.

TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

RULE 5.—To Induce Circulation and Warmth.—Wrap the patient in dry blankets, and commence rubbing the limbs upward, firmly and energetically. The friction must be continued under the blankets or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles or bladders of hot water, heated bricks, etc., to the pit of the stomach, the armpits, between the thighs, and to the soles of the feet. Warm clothing may generally be obtained from the bystanders.

On the restoration of life, when the power of swallowing has returned, a teaspoonful of warm water, small quantities of wine, warm brandy and water, or coffee, should be given. The patient should be kept in bed, and a disposition to sleep encouraged. During re-action, large mustard plasters to the chest and below the shoulders, will greatly relieve the distressed breathing.

II. IF FROM INTENSE COLD—Rub the body with snow, ice, or cold water. Restore warmth by slow degrees. In these accidents it is highly dangerous to apply heat too soon.

III. IF FROM INTOXICATION—Lay the individual on his

side in a bed with his head raised. The patient should be induced to vomit. Stimulants should be avoided.

IV. IF FROM APOPLEXY OR SUN-STROKE.—Cold should be applied to the head, which should be kept well raised. Tight clothing should be removed from the neck and chest.

APPEARANCES WHICH GENERALLY INDICATE DEATH.

There is no breathing or heart's action; the eye-lids are generally half closed; the pupils dilated; the jaws clenched; the fingers semi-contracted; the tongue appearing between the teeth; and the mouth and nostrils are covered with a frothy mucus. Coldness and pallor of surface increase.—*Royal Humane Society's Instructions.*

POISONING.

Occasionally persons are poisoned accidentally or by mistake, but most frequently it is taken for the purpose of suicide. Those who take poison are rarely in a condition to determine the most efficient agent, or the appropriate quantity to destroy life; hence they either take too much or too little; and a large majority recover to learn the folly of attempting to deprive themselves of life. It may be laid down as a general rule, that persons who attempt to commit suicide, are laboring under temporary insanity, and in many cases it is proper to put them under judicious restraint.

OPIMUM.—Opium is resorted to for the purpose of suicide more frequently than any other agent, and is most commonly taken in the form of tincture—*laudanum*. Fortunately, in many cases, that which is sold to the public, is only from one-half to sometimes not more than the one-tenth of its officinal strength—so weak, in fact, that what seems a large quantity, will not produce death.

The symptoms of poisoning by opium, or any of its preparations, are, unnatural stupor and disposition to

sleep, with a very marked apathetic countenance. The person does not like to be disturbed, and would rather die than live. When they can not be aroused by shaking or dashing cold water in the face, there is danger, and especially if the breathing is stertorous or snoring.

Treatment.—Uncover the person's breast, and dash cold water on the face, neck and breast, shaking them sturdily until they are partially aroused. Now mix a teaspoonful of ground mustard in half a tumblerful of tepid water, and force the person to swallow it, and repeat the dose every ten minutes until vomiting is induced; immediately place the person on his feet, and with an assistant under each arm, keep him constantly moving, giving an occasional dash of cold water, if it seems necessary. Keep the person constantly in motion, so as to prevent their sleeping for six or eight hours, and he will be out of all danger.

ARSENIC.—The next most frequent poison is some of the preparations of arsenic, most usually *white arsenic*, or arsenious acid. Nausea and faintness are the first symptoms, to which succeed a burning pain in the stomach; obstinate vomiting, which, if it does cease for a moment, is immediately excited by any kind of drink; a sensation of dryness, heat and tightness in the throat; diarrhœa, accompanied with straining; bowels tense and painful; pulse small, quick and feeble; the surface cold and clammy; delirium, convulsions, and death.

Treatment.—In cases of poisoning by arsenic, immediately beat up two eggs and give the patient, and follow with an emetic of mustard, if they are not thrown up without. Send at once to the nearest drug store for the *hydrated sesqui-oxyd of iron*, and give it in tablespoonful doses every ten or fifteen minutes. If this can not be obtained, take any rusty piece of iron, wash the rust off, and give the sufferer. A mustard plaster may be applied over the stomach, and extended down over the bowels, if there is much pain.

MERCURY.—The bi-chloride of mercury, or *corrosive sublimate*, is the preparation most frequently used, and is one of the most deadly of the metallic poisons. It gives rise to a harsh metallic taste; burning pain in the stomach; vomiting and purging, frequently of bloody matter; irritation of the urinary organs; tightness and burning in the throat, occasionally so great as to prevent speech; tendency to doze, stupor, convulsions, and death.

Treatment.—In cases of poisoning by mercury, albuminous substances, as white of egg, milk, a mixture of wheat flour, etc., should be immediately and freely administered. This does not prevent, but only retards the absorption of the poison, and consequently its constitutional effects will be liable to be produced. The inflammation, salivation, etc., will be treated on general principles by a physician.

COPPER.—Poisoning by copper is rare, yet occasionally a case is met with where it is accidental, as by getting the verdigris off of old copper. The symptoms are headache, cutting pain in the bowels, cramps in the legs and thighs, the pulse being small, quick and feeble.

Treatment.—In poisoning by copper, administer the whites of eggs, and evacuate the stomach by an emetic. Afterward the treatment will be for the irritation of the stomach and bowels.

LEAD.—Lead is rarely taken as a poison, and if it were, the symptoms and treatment would be similar to the agents above named. Most usually, lead poisoning is chronic and accidental, as by taking water, food or liquors impregnated with lead, and in persons working in the metal, as painters, plumbers, white lead manufacturers, etc.

The symptoms of chronic lead poisoning are, loss of appetite and power of digestion; constipation, the stools being light-colored, small and hard; lead colic; want of power over the voluntary muscles, especially manifested by dropping of the wrists, and a peculiar bluish, leaden line on the margin of the gums.

Treatment.—Remove the person from the influence of the lead poison. Then give iodide of potassium in doses of three grains, four times a day, keeping the bowels open with some mild cathartic.

STRYCHNIA.—This agent is frequently used for the purpose of suicide, and is very prompt and certain in its action. The first symptoms are a feeling of weight and weakness in the limbs, with unnatural rigidity or slight spasms, when motion is attempted. When its effects are fully developed, there is frequently recurring *tetanic* spasms, the entire body being convulsed, and the person suffering intense pain. These continue to increase in frequency and intensity, until it would seem impossible for the sufferer to live, and finally death ends his misery.

Treatment.—Give the sufferer freely of any fatty matter, sweet oil, lard, lard oil, etc., a pint at a time, having it ejected each time by passing the finger down the throat. After repeating this two or three times, give equal parts of tincture of camphor and gelseminum, in teaspoonful doses every half hour.

PRUSSIC ACID.—Prussic acid is a most deadly poison. The symptoms are, an extremely bitter, unpleasant taste in the mouth; a sensation of faintness and giddiness, succeeded by convulsions and insensibility. Its influence is very rapid, and its effects soon pass off, so that the person will either die, or recover within the hour.

Treatment.—There is no antidote to this poison, but the treatment should be that recommended for the recovery of persons drowned. Let a physician be immediately sent for, who will adopt the necessary treatment, if it is taken in too small quantity to prove fatal.

BELLADONNA, STRAMONIUM, HYOSCIAMUS.—The symptoms of poisoning by these agents is very nearly alike. There is dryness of the throat and fauces, dilatation of the pupil and insensibility to light, delirium, stupor, coma and death.

Treatment.—Give at once the mustard emetic until free

vomiting is produced, then give a decoction of young Hyson tea freely.

RHUS—(*Poison Vine*).—Persons are frequently poisoned by coming in contact with the different varieties of *poison vine*, and not unfrequently the symptoms are very severe, and in some cases dangerous. Usually a crop of pustules make their appearance upon the part exposed, it being also swollen, inflamed and painful. They may be very persistent, coming out in successive crops for eight or ten days; or, in rarer cases, a severe erysipelas results, and the case becomes one of danger.

Treatment.—Take the bark of the common elder, boil it in buttermilk and apply the decoction to the part affected. If this can not be obtained, use equal parts of tincture of camphor and milk, or equal parts of lime-water and linseed oil. Bi-carbonate of soda, or common washing soda, is one of the best remedies that can be used. Add sufficient water to it to form a paste, and apply thoroughly once or twice a day to the part poisoned. It will usually kill it in from two to four days.

SUN-STROKE.

Coup de soliel, or sun-stroke, is usually caused by prolonged exposure to the direct rays of the sun, but in some cases exposure for a very short time will cause it. The first symptoms are a feeling of weight and tension in the head, with intolerable heat of the surface and dizziness. Very soon the patient feels unable to command his limbs, and sinks down in a state of more or less complete unconsciousness.

To prevent sun-stroke, wear a hat that permits the air to pass through, and have the top lined with one thickness of flannel, or keep a silk pocket handkerchief in the crown. Persons who feel the symptoms above named should immediately get in the shade, and bathe the head in cold water; exposure to the sun on the same day would in most cases be very imprudent.

TREATMENT.—When a person is sun-struck, have him immediately conveyed to the shade, in a cool place, where there is free circulation of air. Bathe the head freely with cold water, and if the extremities are cold rub them warm with the hand or dry mustard. As soon as he is able to swallow, give internally tincture of camphor, or other stimulus in small quantity. If he is unconscious and breathes with difficulty, pursue the plan recommended for restoring the apparently dead.

APOPLEXY.

Apoplexy is caused by sudden congestion of the brain, or rupture of some of the small blood vessels and formation of a clot within it. In all cases there is compression of the structure of the brain, and sudden arrest of its function. In many cases the person has no warning of the attack; in others he has a feeling of dizziness and partial loss of consciousness and command over the voluntary muscles, which continues but a few minutes, and recurs at intervals for several days.

When the attack comes on he loses his consciousness suddenly, and falls down in any place where he may be situated. The breathing is slow, labored and snoring, the pulse full, slow and oppressed, the body remaining in one position without convulsive movement.

TREATMENT.—Let the person be immediately placed in a comfortable position on his back, with his head and shoulders elevated. Bathe the head with cold water, and have the lower extremities rubbed with mustard, being careful that the by-standers do not crowd round so as to obstruct circulation of air. Apply a large mustard plaster to the stomach, and if it is a bad case, use an injection of a teaspoonful of ground mustard, one of salt, and one of lard to a pint of water. Give nothing internally, but send immediately for a physician.

Persons predisposed to apoplexy should live very tem-

perately, avoiding rich, stimulating food, and all kinds of liquors. The cold bath with rubbing should be used two or three times a week, and exercise taken in the open air. As excessive mental exercise predisposes to the disease in some cases, it is well to keep the mind as free from excitement as possible.

CONCUSSION OF THE BRAIN.

Persons falling from a distance may suffer from concussion of the brain, especially if they fall upon the head, and the same effects may result from severe blows upon the head. The symptoms are entire loss of consciousness, slow and difficult breathing, and slow, oppressed pulse. The management of such a case would be the same as in apoplexy, sending immediately for a physician.

BRUISES.

When a part is struck and injured, the vitality of the tissues are impaired, and blood is exuded from the vessels into the tissues. Purplish discoloration results, and the part is said to be bruised.

TREATMENT.—The most efficient treatment in these cases is the application of the tincture of arnica, diluted with from one to four parts of water. It should be applied with cotton cloths, and the part kept continually wet. If you cannot get this agent, use tincture of camphor in the same way, or even tolerably strong salt water. The application of a poultice of Solomon's seal will speedily remove the discoloration of a "black eye."

CUTS.

When a part is cut, the first thing that causes alarm to the person and by-standers is the flow of blood. Every person seems to be fearful of blood, and but a small loss

occasions alarm. If there is but oozing of dark colored blood, no matter if there seems to be a large quantity lost, there is no danger, and the bleeding will stop of itself. If the blood is dark colored and flows in a constant stream, a vein is injured, and compression should be made upon that side of the wound farthest from the heart. If, however, the blood flows in jets and is bright colored, an artery is wounded, and if the stream is of considerable size, the person is in danger, and the flow of blood should immediately be stopped by compression.

By refering to Fig. 3 descriptive of the blood vessels, the course of all the arteries may be traced. Now, if you have leisure, follow the course of all these vessels on your own body, as you can tell the situation of an artery by its pulsation. In a very short time you will have learned the situation of every important artery in the body, and this knowledge, in time, may be the means of saving your own or some other person's life. Arteries when cut, bleed from that end next the heart, and all you have to do to arrest the hemorrhage is to apply pressure to the artery on that side. For a temporary purpose, apply your thumb above the wound, making pressure toward the bone; the arrest of the flow of blood will tell you when you have it over the artery. Now have a bystander get you a block of wood, or a pebble an inch in diameter, and place it immediately where you have your thumb, pass a handkerchief around the limb over it, and twist sufficiently tight to check the flow of blood.

Unless a large trunk is cut, which is not common, the flow of blood soon ceases, and the wound may be dressed. If gaping, take a common stout needle, thread it with silk, and pass it through first one and then the other edge of the wound, tying it sufficiently tight to bring the edges together; this is called a *suture*, and as many of them may be taken as necessary. Now take common adhesive plaster, cut it in strips half an inch wide, and heating them over a candle or tin vessel of hot water bring them

over the wound cross-wise, so as to bring it perfectly together. If the wound does not gap much, the adhesive plaster will answer without the stitches. No other application is necessary, unless the part becomes swollen and painful, when cold water should be applied to it.

BURNS.

Burns are the same, whether produced by a hot solid, or by hot fluids. They vary in character according to the length of time the body is exposed to their influence, and the extent of surface involved. If one-seventh of the entire surface of the body is scalded so as to destroy the skin, it is claimed by some authorities that the patient will not recover; some persons, however, will get well if even a much greater surface is burned.

TREATMENT.—When a person is burned or scalded, immediately wrap the part up in cloths wrung out of common cider vinegar, keeping them continually wet, or if it can be obtained, the *fire extractor* of our dispensatory may be applied. The old-fashioned remedy was equal parts of lime-water and linseed oil, and a very good remedy it was in many cases. Some direct that the parts should be immediately covered with flour, others prefer slippery elm; both of these are objectionable, as they stick to the burned part, and can with difficulty be removed if any other application has to be resorted to. It is very important, if a limb or the neck is burned, that it be kept straight during the process of healing, as contraction of the cicatrix is very likely to occur, producing serious deformity.

DISLOCATIONS.

By a dislocation we understand the forcible separation of the bones at their point of articulation, the extremities of the bone being thrown out of joint. It is usually the result of falls or blows, and is manifested by pain, deform-

ity of the joint, and imperfect motion. Any person who will carefully examine the same joint upon the opposite side of the body will be able to determine the character of the injury. We determine it from a fracture by carefully pressing the fingers against each bone that enters into the joint from one end to another; this can be done, as the muscles yield to pressure; and in almost all cases the extremities of the bones can be felt in an unnatural position.

The most frequent points of dislocation are the shoulder, wrist, hip, ankle, in the order in which they are named. In dislocation of the shoulder the arm can be moved forward and backward, and to a limited extent, elevated, and the hand contracted without pain. But on elevating the limb it becomes painful, and before it is brought to a right angle with the body its movement is arrested. As will be seen by the cut, dislocation of the wrist produces marked deformity, and the ends of the bones can be readily felt. The hand may be thrown either forward or backward. Dislocation of the hip most generally gives rise to shortening of the limb, as seen in Fig. 32, though in some cases the head of the bone being thrown downward, the limb is elongated. Dislocation of the ankle is almost always accompanied by fracture of the outer bone of the leg, *fibula*, and presents the appearance seen in Fig. 30.

TREATMENT.—If it is possible, obtain a good physician as soon as you can, in the meantime if the joint swells and is painful, keep it perfectly still and apply cloths wrung out of cold water. If a physician or surgeon can not be obtained, make up your mind to set the limb yourself, observing the following rules.

In case of dislocation of the lower jaw, the injury will be so apparent that it can not be mistaken. The mouth is wide open, and it is impossible to shut it. Place two fingers of each hand in the mouth upon the molar teeth, and the thumbs against the under surface of the chin, draw the bone downward with the fingers pressing the

FIG. 28.



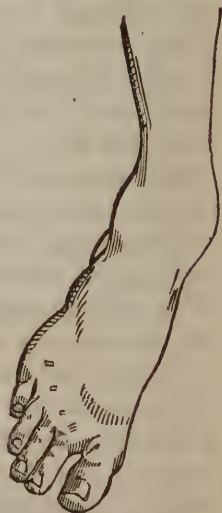
Dislocation of the Lower Jaw.

FIG. 29.



Dislocation of Shoulder.

FIG. 30.

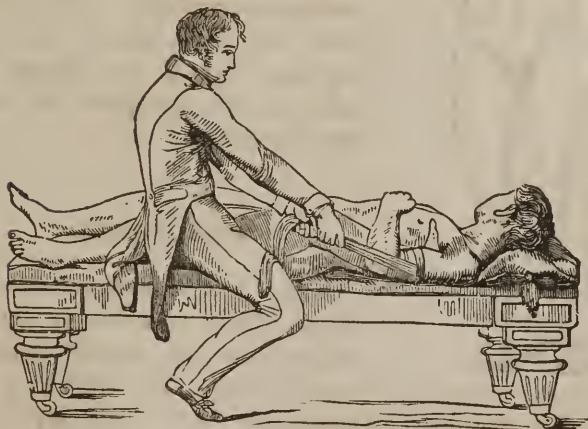


Dislocation of Ankle.

chin upward with the thumbs, and press it backward; it will go into position with a very marked snap.

In case of the shoulder, let the person lie down upon the floor; take your boot off of that foot that corresponds to the injured limb; sit down by the side of the sufferer, and put the heel of your foot in his armpit; now grasp his hand, and make steady, slow but powerful traction on

FIG. 31.



Reduction of Dislocations of Shoulder.

the arm, and in nine cases out of ten you will be gratified by hearing the bone return to its place with a perceptible snap.

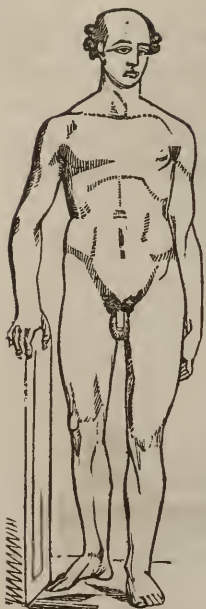
FIG. 32.



Dislocation of Wrist.

The wrist can usually be set with but little difficulty, all that is necessary being to make continuous traction until it goes into place.

FIG. 33.



Dislocation of Hip.

The hip is not so easily set, as it requires the manipulation of a skilled surgeon, and I should not advise it to be undertaken if it is possible to obtain the necessary assistance. If this cannot be obtained, recollect that continuous, powerful traction will draw the bone out of its false position, and if you know its true one, you can press the head into the socket.

FRACTURES.

Bones are broken by falls or blows, either transversely across, obliquely, or into several pieces—comminuted. The injury is attended by more or less acute pain in the part, especially when it is moved, shortening of the limb, and in a majority of cases by almost entire loss of motion. If now the fingers are carefully pressed along the bone, the seat of fracture will be detected, and the sharp extremities of the bone felt. In very severe and bad cases, one or both broken extremities are driven through the flesh and skin.

TREATMENT.—Place the sufferer in an easy position, and the broken limb on a pillow in as comfortable a position as possible—which will almost always be to lay it straight—and send for a surgeon. If the person has to be moved any distance, it is well to apply two straight pieces of board on each side of the limb, straightening it out to its full length if possible, and tying them fast with strips of muslin two inches wide.

If a surgeon can not be obtained soon, say during the

same day, adopt the following plans: If the injury is of the lower extremity, and when the bones are set, they immediately draw back, place the patient on a single bed or lounge, and elevate its foot, say eight or ten inches; now attach a bandage three inches wide to the foot and ankle, so that it will hold it without making too great pressure, and firmly fasten it to the foot of the bed; put a pillow under the limb, and the work is done. The inclination of the bed being such that the patient will slide toward the head of the bed, and the ankle being fastened to its foot, the leg will be drawn out and set itself.

The same plan may be adopted with the arm, but in a majority of cases, if it is drawn out to its full length, and two straight boards or splints applied, the bones will be retained in position until the surgeon can give it a proper dressing.

HERNIA.

Hernia, or *rupture*, is the escape of a portion of the intestine through the abdominal walls. This usually

FIG. 34.



Inguinal Hernia.

occurs at two points—first, at the inguinal canal just above the groin, as seen in Fig. 34. This is most frequent in males. Second, at and just below the groin. This is most frequent in females. Rupture is most usually caused by heavy lifting, straining, or injuries, though some persons seem to be naturally predisposed to it, the abdominal walls being weak at these points.

Hernia is usually recognized with ease—the passage of the intestine causing a feeling of pain or weakness, and a peculiar puffy swelling is observed at the spot. Whenever a rupture is discovered, it should be carefully put back by pressure, and a bandage and compress worn until a properly adjusted truss can be procured, which should be worn constantly, putting it on in the morning before getting up, and taking it off on going to bed.

Sometimes the intestine comes down, and the sufferer can not return it, and it is then called strangulated hernia. In this case let him lie down upon his back, and for half an hour apply warm applications; now let pressure be made upon the tumor, gradually working it back a part at a time. It is best to send for a physician immediately on finding that the intestine can not be returned by the usual means. If the case is likely to be a difficult one, it will be better to apply a fomentation of tobacco leaves for half an hour before the physician is expected, to produce relaxation.

HEMORRHOIDS.

Hemorrhoids, or piles, is a very unpleasant affection, sometimes giving rise to such suffering and inconvenience, that life is rendered a burthen. They are divided into two varieties, *internal* and *external*—the one being within the rectum, and covered with mucous membrane, the other being outside and covered with the skin. Internal piles, when large, come down when the patient goes to stool, and have to be returned after the evacuation of the

bowels. They also bleed very frequently, and are sometimes called bleeding piles.

Both internal and external piles result from enlargement of the veins of the rectum, which, as we have heretofore seen, form part of the portal circulation, the blood passing through the liver on its way back to the heart. Any cause tending to induce congestion of these veins, will give rise to the disease. At first the pile-tumors are soft, and vary in size, at times being large, and then passing nearly entirely away, but at last they become more or less solid and are permanent.

TREATMENT.—In the early stages of the disease, it is amenable to medicinal means, but when it has continued for years, the better plan is to have the piles removed by an operation. As the first and most important part of the treatment, the bowels should be kept regular, moving every day. If this is not attended to, it is useless to do any thing else. The Butternut Extract, No. 13, will be found a very good remedy for this purpose, and it may be aided, if necessary, by the Podophyllin Pill, No. 12. As small a quantity of these should be used as will answer the purpose, and the dose should be lessened each day until the bowels act without medicine. As a local application, I would strongly recommend lavements, and small injections of ice-cold water. Or, take tannin, one drachm; lard, one ounce; mix to form an ointment, and apply to the tumors two or three times a day.

A permanent cure, even in bad cases, can sometimes be accomplished without an operation, as I have seen numerous times in my practice. If not, the removal of the tumors is neither very painful nor difficult in competent hands.

FISTULA IN ANO.

Fistula of the anus is always the result of a small abscess or boil near the rectum. This being improperly treated, the matter burrows in various directions, finally opening,

in many cases, both externally and into the bowel, forming a false passage for the escape of its contents. The walls of the fistula become hardened and callous, and constantly discharge matter, there being no tendency to heal up. It is a very loathsome and annoying disease, often severely affecting the general health. No domestic treatment will do any good—apply to a skillful surgeon, who prefers the ligature to the knife, and a cure can be effected in a short period.

CHRONIC DISEASE OF THE BONES.

Diseases of the bones are among the slowest and most stubborn that we have to contend with. Sometimes the shaft of a long bone is the seat of the disease; at others the extremities of the bones, and consequently the joints are implicated. The commencement of disease of the bone may be known usually by its slow progress, the deep-seated pain, and the attachment of the swelling to the bone. In the case of the joints, slight swelling, weakness, and pain in certain movements, are the symptoms. Do not regard these symptoms lightly, but as they continue longer than any common affection, consult some competent authority, and pursue a regular course of treatment. All domestic remedies must do harm, as they waste time, and not unfrequently aggravate the disease.

Very many cases of stubborn disease of the bones, attended with fistulous openings, and continuous discharge, are relieved by removing the dead bone that acts as a constant irritant. The prospects of cure in all cases, are sufficient to induce the consultation of good surgical authority.

FIG. 35.



Diseased Bone.

FIG. 36.



Section of bone showing enlargement, the result of inflammation.

FIG. 37.



Inflammatory disease of the shaft of the femur.

FIG. 38.



Disease of the bones of the leg, the result of injury.

FIG. 39.



Extremity of diseased bones, showing the projecting spicula.

TUMORS.

Tumors may form in any part of the body, either internally or externally. There are very many varieties, but they may be divided into two prominent classes, the *benign* and the *malignant*. The first, though it may attain a very large size, is not destructive to life, further than from its great size, and the injurious pressure of it upon other organs or parts. The second seems to have an independent vitality, and fastening itself upon the body, it not only appropriates the nutritive materials of the tissues, but it destroys those with which it comes in contact, until finally death results.

FIG. 40.



Tumor of bone.

A benign tumor may consist entirely of fibrous tissue, or of an outer wall of this, and contain a watery or fatty material, or it may be formed of numerous sacks containing fluid. Its growth may be rapid or slow, but it does not give rise to any pain or uneasiness, except that produced by pressure upon the skin or internal parts, unless when developed within or in connection with internal organs. I have removed many of them that only became troublesome when they had become very large. The only sure plan of treatment is their removal with the knife, an operation attended with but very little if any danger.

CANCER.

Cancer is the most fearful disease to which humanity is subject, as its commencement and progress are so insidious as to cause but little alarm, until, when his attention is strongly drawn to it, most physicians regard his doom as sealed. Three forms of the disease may be distinguished—first, that which is at first confined to the skin, though at length extending deeper, *lupus*; second, that which commences as a slow, hard, nodulated tumor, gradually embracing adjacent tissues, *schirrus*; and third, that which grows rapidly, is somewhat soft and fluctuating, and passes rapidly to a fatal termination, *fungus hematodes*. Their malignancy is in the order in which I have named them, the *lupus* least, and the *fungus hematodes* the most virulent.

Lupus, or cancer of the skin, commences sometimes by a slight itching sensation of the skin, as if a fly was on it, and frequently the hand will be raised up to brush it off. If closely examined now, it will be found but slightly discolored and roughened. But after a few months a small sore is formed, which is continually forming and throwing off a scab, the skin gradually becoming thickened, and the ulcer increasing in depth, until the fully formed disease is developed. At other times it will com-

mence as a small wart, which becomes irritable, is picked off, grows again, and at last exhibits its malignancy.

Schirrus usually commences as a small, hard tumor, situated immediately beneath the skin. It is movable under the skin, and gives rise to but little unusual sensation, except that of stinging or pricking of the part. It is the last-named feature that calls attention to it, but as it is so small, and occasions no inconvenience, it is not deemed necessary to say any thing about it. But it keeps growing, sometimes slow, at others pretty fast. It becomes nodulated or rough; forms an attachment to the skin, and to parts beneath; is now quite large, the skin ulcerates, and a foul sore is the result. Now the adjacent lymphatic glands become enlarged, and the system becoming contaminated, there is no earthly help for the sufferer.

Fungus hematodes commences as a tumor under the skin, but it seems to have an attachment below. It grows rapidly, soon forms an attachment to the skin, and in some cases obtains an enormous size before it ulcerates. At other times ulceration occurs early, and a large granular mass grows from the surface.

TREATMENT.—The treatment of cancer, if it is to be successful, must be commenced at an early period. While the disease is entirely local, the adjacent glands not being affected, nor the skin much implicated, a cure is almost certain if proper treatment is adopted; but if it is allowed to progress until the lymphatics are involved, and the system impregnated with the cancerous poison, there is no known means of curing even a single case. If, then, you have a suspicious growth, have it examined by a physician competent to determine its character, and have it immediately removed.

Various plans of treatment have been adopted, and they may be resolved into the removal of the cancerous mass with the knife, or its extirpation with caustic. The knife has been brought into disrepute by the way in which it has been employed. As we use it, we remove the

growth and the skin covering it, and then, by the use of remedies, keep up suppuration from the wound until the last vestige of morbid growth is extirpated. If caustics are employed, they must be so used as to destroy the entire growth at once, for if they do not, they set up inflammatory action, and the cancer grows more rapidly than if nothing had been done for it. Some cases can be removed by a painless application, though it, as most other-means, is most successful with those who have had large experience in the treatment of this disease. Beware of quacks and cancer doctors, and trust rather your family adviser, or some physician who does a legitimate business, than one you do not know, and who possibly has no further interest than to obtain your money.

CARBUNCLE.

A carbuncle is a malignant boil, and manifests but little tendency to natural recovery. It commences as a small, hard, and painful swelling of the skin, similar to a boil, though much more irritable. It enlarges slowly, but, contrary to the expectation of the sufferer, it does not suppurate. In four or five days it will have obtained considerable size; it looks red and angry, is intensely painful, and presents two or three yellowish spots on its top that indicate matter. If these are punctured, but a drop or two exudes. As it progresses it involves the adjacent skin, and more of these yellowish spots are seen, and on examination they are found to be the external orifices of canals which pass through the mass in all directions. Continuing further, portions of tissue die and are thrown off, until at the end of the second or third week, the carbuncle has attained the size of a hen's egg, or a small saucer, with a central, foul, sloughing ulcer.

TREATMENT.—There are but two ways of treating carbuncles successfully—they must either be freely incised to their base in two or three directions, or they must be

burned out with caustic. Both operations are painful. In the first, the surgeon takes a sharp knife and passes it through the tumor from side to side, dividing it to its base, and again in the same manner from above downward. I much prefer the use of the caustic. Take of sesqui-carbonate of potash, or if this can not be obtained, carbonate of potash, a sufficient quantity; pour a sufficient quantity of water on it to dissolve it, and, with a small glass syringe, inject it into every external opening. The pain is intense at first, but in a short time it is almost entirely relieved. This should be repeated once a day until the growth of the carbuncle is arrested, drawing it in the meantime with any simple ointment. After this it will heal kindly.

BOILS.

A boil is an inflammation of the skin, and is commonly supposed, but without any very good grounds, to indicate impurity of the blood. They commence as a small, round, painful tumor in the skin, which day by day increases in size and impairs the movements of adjacent parts. Usually, by the sixth or eighth day, the pain becomes tensive and throbbing, indicating the presence of pus or matter, and in two or three days more they break and discharge their contents, when the part heals up. They vary much in size, sometimes being small, and of very little consequence, but at others they are large, numerous, and very painful.

TREATMENT.—In a majority of cases all the treatment that is necessary, is, to poultice them with slippery elm, and when matter has formed, have them opened. If they still remain painful, and will not heal, use the injection named under the head of Carbuncle. Sometimes they may be driven back by painting the skin with strong tincture of iodine. If a person is continuously troubled with them, an alterative will be useful, as No. 61, 62, or 63; or he may take a tablespoonful of lime-water in a

glass of milk three times a day, which is said to be a certain means of arresting them.

FELON.

A felon is a deep-seated inflammation of the fibrous tissues covering the bones of the fingers. It is generally supposed to arise from a bruise or injury, but in many cases no such cause has been noticed. The first symptoms are a feeling of deep-seated pain and soreness, and tenderness on pressure. This increasing, the part becomes very tender and swollen, and in two or three days is so painful that it can not be used. The pain of a felon is, in many cases, extreme, so much so that the sufferer can get rest neither day or night. Suppuration occurs in from four to ten days, but as the tissues are so dense, it requires a considerable length of time for the pus to reach the surface.

In some cases, especially if improperly treated, the bone becomes affected, and passes away in small pieces with the matter, the finger being a most unpleasant looking sight.

TREATMENT.—At the commencement of the disease, it may be arrested in many cases. Take of common yellow clay, finely powdered, a sufficient quantity to make a poultice for the finger half an inch thick; wet it with vinegar until it is about the consistence of brick or potter's clay; now put it around the affected finger, and tie it on with a strong bandage of cotton cloth. When it dries it will form a strong case for the finger, which will prevent swelling. It will be quite painful for the first day, but after that the pain will gradually cease, and in three or four days the finger will be well. The application should not be removed until all the pain and soreness has disappeared.

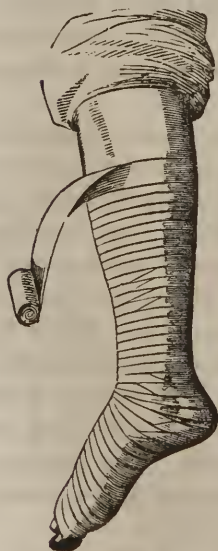
If too late for this, apply a poultice of slippery elm, bread and milk, or flaxseed, until pus is formed, then have

it opened. Wool soaked in lard is a good application to cause it to suppurate, though it is very painful. If the felon has been a bad one, have it injected with the potash solution named under the head of carbuncle.

ULCERS.

An ulcer is an open sore in the skin of variable size, and with but little tendency to get well without assistance. They are sometimes the result of injury of the part; at others, they are caused by varicose veins, and at others they are produced by a scrofulous, mercurial or other cachectic condition of the system. They may be divided into three kinds: the *irritable* ulcer, which is painful and very annoying; the *corroding* or eating ulcer, which manifests a continued tendency to enlarge; and the *indolent* ulcer, the name expressing its general character.

FIG. 41.



Application of Bandage.

TREATMENT.—An ulcer in its early stage, if on one of the extremities, may almost always be healed by the application of cold water, and the careful use of the bandage, see Fig. 41. Apply to your physician and let him instruct you how to apply the *roller* properly, for if not used so as to produce equal pressure, it is rather a detriment than a benefit. In some cases the ointments Nos. 90 and 91, answer an excellent purpose, and will sometimes heal the ulcer, without the use of the bandage. If the person is of a scrofulous or cachectic habit, an appropriate general treatment should be adopted to remove this condition and restore the general health.

PART V.

DISEASES AND THEIR TREATMENT.

DISEASE.

Disease we define to be any change from the normal structure or function of any part, or of the entire system. If the disease embraces the entire body, we say that it is a general disease, but if confined to any organ or part, we call it a local disease. Disease always involves a change of structure, either in the fluids or solids, even in those rare cases in which it originates in, and seems to be confined to, the nervous system.

Before considering local and general disease, it will be well to take a glance at the forces which act upon the materials of which the body is composed, producing all the varied actions of the system both in health and disease. In the human body, as well as in all living organisms, we recognize two separate and distinct forces, which are antagonistic to each other; these are the *vital*, and the *chemical* forces.

The vital force is that power which from the single cell builds up the entire organism; separates from the nutritive materials furnished it, those portions which form the different organs of secretion, excretion, and innervation; supplies the waste of the tissues, and tends to keep the body intact.

But in the chemical force, we recognize the cause of the waste of the body, the disintegration of the tissues, the change of matter from a higher to a lower grade of organization, and all the retrograde tendencies in the body—from a state of health to disease and death.

Health then consists in the maintenance of the proper equilibrium between the vital force which builds up the system, and the chemical force which causes disorganization. Life itself is a forced state of being caused by a preponderance of vital force; every atom of the body having a constant tendency to revert back to its original elements. This change taking place in the entire body, produces *death*; in but a portion of the body, it produces disease.

GENERAL DISEASE.

There can be no doubt that the seat of general disease is in the fluids of the body, and that all the phenomena that is manifested by it, grow out of changes which are primarily produced in the blood. This will be more apparent when we reflect that it furnishes nutritive material to all parts and tissues, and that its stimulation is necessary to the performance of all the functions of the body. No other part of the organism can be compared to the blood, in respect to the feeble influence it offers to external influences. "The blood," says Liebig, "is not an organ which is formed, but an organ in process of formation; indeed it is the sum of all the organs which are being formed. The chemical force and vital principle hold each other in such perfect equilibrium, that every disturbance, however trifling, or from whatever cause it may proceed, effects a change in the blood. This liquid possesses so little permanence, that it can not be removed from the body without immediately suffering a change, and can not come in contact with any organ in the body without yielding to its attraction.

"The slightest action of a chemical agent upon the blood exercises an injurious influence; even the momentary contact of the air in the lungs, although effected through the medium of cells and membranes, alters the color and qualities of the blood. Every chemical action propagates itself through the mass of the blood; for ex-

ample, the active chemical condition of a body undergoing decomposition, fermentation, putrefaction or decay, disturbs the equilibrium between the chemical force and the vital principle in the circulating fluid. Numerous modifications in the composition and conditions of the compounds produced from the elements of the blood, result from the conflict of the vital force with the chemical affinity, in their incessant endeavor to overcome one another."

Diseases of the blood may consist either in an excess or defect in the normal constituents of that fluid, in a change in the composition of some of its elements, or in the presence of a morbid matter, either generated within the system or introduced from without.

Excess of the normal constituents of the blood is rarely a cause of disease, without, indeed, we should consider the increased quantity of fibrine in inflammatory diseases an instance of this kind; or the constituents of the urine, urea, uric acid, etc., as elements always found in the blood.

Defect of some of the constituents of this fluid is of common occurrence; thus we may have a defect in the quantity or quality of the red globules, the albumen, fibrine or the salts. A defect either in the quantity or quality of either of these materials *is disease*, and being located in the fluid that furnishes nutritive material for the entire system, the entire system suffers in proportion to the importance of the constituent affected, and the change in quantity or quality that it has undergone.

The presence of a *morbid material* in the blood is the most frequent cause of general disease. This morbid material may be either generated within the body, and retained, or it may be introduced into the circulation from without. What are we to understand by the term *morbid material*? We may define it to be any substance of a lower degree of organization than the blood—an organized body which has already begun to decay, such a body

as we know will act like *yeast* in the blood, effecting a similar destruction in every particle of it that has not sufficient vitality to resist the change.

FEVER.

Fever is a disease characterized by a rapid circulation of blood, increased heat of the surface, arrest of the secretions, and an irritable condition of the nervous system.

Authors have divided it into two principal classes, *idiopathic* and *symptomatic* fever. In the first, there is no local disease at its commencement, all parts of the body suffering alike; therefore, it must be a disease of the blood and the nervous system, as these only are generally distributed through the body. The second is preceded by *inflammation* of some part, the inflammation being the cause of the fever, as will be hereafter described.

CAUSES OF FEVER.—1. It may be induced by a sudden shock of the nervous system, as is sometimes witnessed from the depressing emotions, fear, grief, etc., and in some few other cases from great excitement. In these instances the nervous system is exhausted, and consequently there is a feeble circulation of blood, and imperfect excretion, effete material being retained within the blood. During epidemics it has long been noticed that those who suffered from fear or mental excitement, were very likely to have the disease. 2. Suppression of the excretions is a very frequent cause of fever. As we have already seen, the excretions are composed of the worn out tissues of the body, and in all cases are poisonous to it. Now if such material as is removed by the skin, the kidneys or bowels, is retained in the blood by arrest of secretion, disease must result, and new processes must be set on foot to remove the offending material. 3. Causes inducing congestion or a sluggish circulation of blood, will cause fever. In order to retain its vital properties, it is necessary that it continues in active circulation. If it stops but

a short length of time in any organ or part, it loses its life to a considerable extent, and becomes effete material. 4. Morbid material introduced into the blood from without, as gaseous exhalations from decomposing animal or vegetable material, which gains entrance into the circulation through the lungs; or decomposing animal matter, which may be absorbed from the skin, mucous membranes, etc.

A very good example of the action of a blood poison, is afforded us by inoculation with small-pox virus. The smallest quantity of virus, if placed where it can be readily taken into the blood, is as potent as a larger one. At first, there is no disturbance of the system, the quantity of the poison being too small. But it increases day by day, and in time a gradually increasing depression, manifested by listlessness, languor, loss of appetite, morbid innervation, and arrest of secretion. Finally the depression becomes so great that there does not seem to be power enough in the system to circulate the blood, the result being a *chill* of variable duration. If this continues, vitality will be destroyed; hence, in a longer or shorter time, we find the energies of the system concentrated to overcome it. The result is *febrile reaction*, which ceases only when the material introduced has been entirely removed. In this case it is principally thrown upon the surface as a pustular eruption, but we notice that the poison has been wonderfully increased, as each pustule contains possibly a hundred or a thousand times the quantity introduced. This virus has been produced from the blood by the action of the original minute portion of virus on it.

As another instance, take a person who has been exerting himself more than usual; this exertion has caused a greatly increased disintegration of tissue, which partially disorganized material remains in the blood. The exertion has been attended with increased excretion from the kidneys and skin, the last being especially manifest by free perspiration. At this time the person ceases his exertion, and sits down in a damp place, or in a draft of cold air,

the effect being to stop the secretion from the skin, and the material that would have been thus removed, is retained within the circulation. Not only so, but the blood is driven from the surface to internal parts of the body, embarrassing the action of the internal excretory organs. Now if vicarious excretion does not occur from the kidneys or bowels, the result will be fever, or inflammation of some structure of the body accompanied by it. What are the phenomena that follow? There is first a torpor of all the functions of the body, followed by a chill, and this by febrile reaction, which terminates only when free secretion is re-established.

PHENOMENON OF FEVER.—A fever is composed of four stages: 1st. A stage of incubation, of variable duration; 2d. A cold stage; 3d. A hot stage; and 4th. A stage of excretion, or, as it is generally called, a sweating stage. These follow one another in the order in which they are named, and each one may be considered as the natural sequence of the one which preceded it.

1. The stage of *incubation* is that period between the exposure to the cause of the fever, and the commencement of the chill, and during this time the fever poison is acting in the blood. It is of variable duration—nine to twelve days in smallpox, six days in scarlet fever, and from two or three days to as many weeks in other fevers. The symptoms are those of depressed vitality, languor, listlessness, torpor of all the functions, feeble circulation, etc., which increases daily until the period of chill.

2. *Cold Stage.* With the continued impairment of the blood, we have such depression of the nervous system that there is no longer power to circulate the blood; congestion of parts near the center of circulation ensues, there is deficient oxygenation and capillary circulation in the skin, the result being constriction, coldness and involuntary movements or tremors. If the vital force is so depressed that reaction cannot take place, these symptoms

increase, and the patient dies during the chill, as we sometimes witness in congestive chill.

3. *Hot Stage.* We recognize in organized beings a certain conservative power which opposes the operation of noxious agents and labors to expel them when they are introduced. During the preceding stages this power has been in abeyance, but now, in order to prevent death, it is concentrated to circulate the blood. The result is increased action of the heart and lungs, giving rise to the frequent pulse, return of capillary circulation to the surface, increased oxygenation, and consequent increase of temperature. The rapid circulation and oxygenation of the blood causes excitation of the nervous system; and the concentration of vital force to the circulation of the blood accounts rationally for the arrest of secretion.

4. *Sweating Stage.* If the hot stage has been proportionate to the others, equal circulation throughout the body having been established, and the deleterious material fitted for excretion, it terminates by the establishment of secretion from the skin, kidneys and bowels, and consequent return to health. It may take hours or days for the accomplishment of this end, but if the patient recovers it is accomplished. In intermittent fevers we may suppose that the stage of excretion is not completed; that the blood is not entirely freed from the cause of disease. In such case, after a certain length of time, we would have such increased generation of the morbid material as to reproduce the fever. In remittent fevers, the object being but partially accomplished by one revolution of the disease, there is but remission in the febrile reaction.

DIVISION OF FEVERS.—Fever may be divided into three classes—*febricula* or slight fever; *periodic* fever, and *continued* fever. The first is that evanescent disease that so frequently follows arrest of secretion, and disappears in a few hours or days without trouble. The second is characterized by distinct periodicity, and is divided into two forms, *intermittent* and *remittent* fever. And the third is dis-

tinguished by there being no break in the fever from its commencement until its end ; it is divided into four varieties, sthenic or inflammatory fever, common continued fever, typhoid fever, and typhus fever.

To these we would add the exanthematous fevers, as small-pox, measles, scarlet fever, etc., which are produced by the absorption of a specific virus, which reproduces itself in the blood, and is finally determined to the skin.

FEBRICULA.

The definition of the word febricula, is *little fever*, and we use it to designate the evanescent form of the disease, which is produced by exposure to cold, sudden change of temperature, or other cause that would impair the circulation of the blood, and check secretion.

The symptoms are very plain—the person feels badly for a day or two, has slight chills, headache, pain in the back and limbs, poor appetite, constipation of bowels, and loss of strength. After the chill, the surface becomes hot, the pulse increased in frequency, the nervous system is irritable, and secretions checked. The fever may come on and go off several times during the day, or it may remain constantly for two, or three, or five days. Any person accustomed to sickness will see that the patient is not very ill.

TREATMENT.—In many cases, all that is necessary is to bathe the patient's feet in hot water, and give some mild diaphoretic infusion freely, placing him in bed and covering warmly to produce perspiration. Or we may use the spirit vapor bath No. 26 ; common vapor bath, No. 25 ; blanket pack, No. 28 ; or wet sheet pack, No. 29 ; either of which will restore secretion in these cases, and thus speedily remove the fever. A simpler plan, and a very successful one is, to add tincture of aconite, twenty drops to a tumblerful of water, and give a teaspoonful every hour ; the foot bath and diaphoretic may be used with it.

INTERMITTENT FEVER—AGUE.

A majority of the profession concur in saying that intermittent fever is produced by the absorption of the gaseous exhalations of decomposing vegetable matter, or *marsh miasmata*. In proof of this, it is shown, that this form of fever is endemic in those sections where vegetation is profuse, and the conditions for rapid decomposition generally exist, and that in sections where these conditions do not exist, it is not found. It is further proven by the fact, that in those sections where it is endemic, if the season is remarkably wet or dry, so as to prevent vegetable decomposition, there are but few if any cases of the disease. Any cause which will depress the vital power of the system, will predispose the patient to the action of the malarial poison.

SYMPTOMS.—For a few days preceding the first chill, the patient feels languid and bad, and has more or less pain in the back and limbs, with sometimes headache and derangement of the stomach. The *cold stage* makes its appearance with a desire to yawn or stretch, purplish appearance of the nails, and increased thirst. The patient becomes cold, the skin shrinks, chilly sensations pass over the body, and in many cases there is shivering or trembling of the muscles, sometimes to a very great degree. This chill continues a variable length of time, from fifteen minutes to four or five hours, and is succeeded by febrile action. This is usually in inverse proportion to the chill, as regards duration and intensity. The skin becomes hot and dry, the pulse frequent, the mouth is husky and dry, urine scanty, with considerable pain in the back and head, restlessness, and sometimes delirium. The fever will last for from two or three hours, to nearly the entire day, and is succeeded by the *sweating stage*. The skin grows cool, perspiration is established, urine becomes free, and the pain and restlessness pass entirely off.

The fever, in some cases, occurs every day, when it is

called a *quotidian*; in others, every other day, when it is designated a *tertian*, and in others, every third day, and is called a *quartan*. In some cases it occurs at an earlier hour each day, and is then termed *anticipating ague*, usually a stubborn form of the disease; or it may recur at a later hour each day, when it is called *deferring ague*, which is usually the mildest form of the disease.

If an ague continues for a long period, the skin becomes sallow, the digestive organs are impaired, the spleen enlarges, forming ague-cake, and the nervous system, and in fact the entire body loses its tone. These cases are difficult to manage.

TREATMENT.—In a simple case of intermittent fever, we endeavor to get the system in good condition, and then administer a sufficient quantity of some *anti-periodic* to arrest the disease. Thus, if the person has a foul stomach, give an emetic, as No. 5 or 6. If the bowels are torpid, give a dose of podophyllin pills, and if the skin is inactive, use an appropriate bath. Then give, in the intermission, from twelve to fifteen grains of quinine to an adult, and a proportionate quantity to children, in two or three doses, so that the last may be taken at least one hour before the expected chill. This will arrest the fever in nineteen out of twenty cases; if it does not, repeat it again, paying more attention to the means first named.

To keep it off, use the bath to keep the skin in good condition; keep the bowels regular, and take internally a solution of acetate of potash, No. 41; half an ounce to four ounces of water; a teaspoonful four times a day. For three or four days after the chill is broken, take two or three grains of quinine daily, and every seventh day thereafter, until the system is entirely free, five grains of quinine. The disease has a tendency to recur at periods of seven days, and this must be especially guarded against. No person need fear any injurious action from quinine, above recommended, as it can not possibly do injury. The consequences that have been attributed to it, have

been produced by other agents with which it has been combined.

There are many cases that are very stubborn and persistent, and require the skillful observation of the physician, and in others some complications exist which require an experienced eye to detect. Therefore, if the case is a serious one, or has been protracted, consult your family physician.

CONGESTIVE CHILL.

This is one of the most serious diseases that we meet with in the West and South, sometimes proving fatal in a short time, unless promptly combatted. Every person who lives in a section of country where it prevails, should be able to recognize it at once, and be instructed as to its proper management, for in some cases the patient would be beyond the reach of medicine before a physician could be obtained.

SYMPTOMS.—Congestive chill commences like any other ague, only the depression and loss of strength is much more marked. The surface of the body becomes very cold, the nails and lips are purplish, and the skin of a leaden color; the pulse is very feeble, hardly perceptible at the wrist, and the respiration somewhat difficult; the patient is unnaturally torpid, and if he complains, it is of giddiness, heaviness, and a sense of weight in the head. He does not seem to realize his condition, or the anxiety of his friends, and would almost as soon die as live.

As the disease advances, stupor comes on; he lies upon his back, with tendency to slip down to the foot of the bed; the breathing becomes more difficult; the pulse is small, weak and fluttering, or is intermittent, trickling under the fingers like drops of water, and at last can not be felt at the extremities; a cold, clammy perspiration, sometimes fetid, covers the body; the face assumes a leaden, cadaverous hue; the lips are contracted over the

teeth, and the patient dies, reaction not having taken place.

TREATMENT.—The object of treatment in this case is to produce reaction, and all our means will be directed to this end. Give the patient immediately a vapor bath, as named in No. 25, or a hot blanket pack, as at No. 28, with bottles of hot water, hot bricks and stones, surrounding him, to give all the heat that is possible. If you have in the house any strong stimulant, as life drops, No. 58; tincture of prickly ash, or the stimulating liniment, No. 87; give it internally, in full doses, every few minutes, until symptoms of reaction occur. If you have none of these, make a strong ginger, red pepper, or black pepper tea, and give it as freely as the sufferer will take it.

If a physician can not be obtained, procure early four or five doses of quinine, ten grains each, at the nearest place, and as soon as they arrive, administer one portion, and repeat every fifteen or thirty minutes, until decided signs of reaction are manifest. You might give the patient a half an ounce without injury, if the chill continued, but in almost all cases, two or three doses of the size named will be sufficient.

It must not be considered that the patient is safe because he has recovered from one chill—it is as liable to recur as any other ague, and must be met with treatment to keep it off. This will be the same as named for simple intermittent fever, with the exception that the quantity of quinine will have to be increased.

REMITTENT FEVER—BILIOUS FEVER.

Remittent fever differs from intermittent, in that there is but one chill, the febrile reaction lasting from its commencement to its termination, but having distinct remissions recurring periodically. Like intermittent fever, it is caused by what is generally termed *marsh malaria*, though there is no doubt but that sudden atmospherical vicissi-

tudes and changes of temperature, by arresting secretion, impairing nutrition, and lessening the vital power of the individual, may form a cause of the disease. It occurs principally in the fall, though many cases are seen in the summer, and even the entire year. It also differs much in its character, being mild in high and temperate regions, and severe in low, marshy and warm countries.

SYMPTOMS.—The *forming stage* usually occupies some days, the symptoms being gradually developed. At first there is nothing but a feeling of weariness, especially upon slight exertion. This languor increases, and is accompanied with listlessness, or indisposition to make any exertion; the appetite becomes capricious, with a bad or bitter taste in the mouth; tendency to nausea, with, sometimes, vomiting; the bowels are costive, and skin dry, and more or less pain and heaviness in the head, with, frequently, pain in the back and limbs.

Cold Stage. The attack is sometimes ushered in by a well marked chill or rigor, closely resembling the cold stage of an intermittent. Frequently the chill is very slight, and again merely a sense of coldness; or slight chilly sensations pass over the body, which, after a short time, are succeeded by flushes of heat; these alternate, the chills becoming less and less marked, until, finally, febrile reaction is set up. In some cases, especially those in which the chill is marked, nausea comes on, and finally vomiting, about the time reaction sets in. Sometimes there is some pain in the back and limbs during this stage of the disease. The cold stage usually lasts but a short time, one or two hours, but is occasionally protracted.

Hot Stage. When reaction ensues, the pain in the back, head and limbs increases, being in some cases extremely severe. The temperature of the surface is markedly increased, the skin being dry and constricted, the face flushed and turgid, and the eyes red and suffused. The pulse is full and frequent, rarely tense, and the respiration hurried and uneven. The tongue is covered with a yel-

lowish-white fur, with frequently a disagreeable taste in the mouth, and more or less nausea, with oppression and pain in the epigastrium, and in many cases severe and protracted vomiting of bilious matter. All the secretions are checked—the bowels costive, and the urine scanty and high colored, sometimes loaded with bile which gives it a yellow tinge. The nervous system in many cases is considerably deranged, the patient being watchful and very restless. There is rarely delirium in the first exacerbations, more frequently a marked dullness and torpor.

These symptoms continue from eight to twenty hours, when they gradually pass off; the heat of the surface is diminished, with frequently slight perspiration about the neck and face; the pulse is not so frequent, the pain in head and back ceases, and the patient feels comparatively comfortable, and sometimes takes a refreshing sleep. This constitutes the period of *remission*, which, in a majority of cases, occurs once in twenty-four hours, usually in the morning, though in some there are two per day, in others a more complete remission occurs every second or third day.

This remission varies greatly in its duration and completeness in different cases; in some it is long and amounts almost to an intermission, in others it is short and the febrile symptoms but slightly abated. Following it, the febrile symptoms reappear with all their first intensity, and the hot stage continues to the end of the disease, in a succession of exacerbations and remissions.

In some cases of this fever, we do not observe that the febrile reaction becomes more intense as it progresses, but in others, each succeeding exacerbation is more marked, the remission shorter and less noticeable, until finally the fever is nearly or quite continuous. The irritation of the stomach continues often for two, three or four days; in some cases through the entire disease, if not arrested by remedies.

As might be supposed, the patient's strength fails day

by day, innervation and secretion become more and more impaired, until by the seventh or eighth day we find him in one of two conditions. The fever having lost its original type, has become an adynamic continued fever, with typhoid symptoms. Or, the patient's strength having become greatly exhausted, we observe a want of reactive power, there is a tendency to congestion during the remissions, at which time the surface becomes cool, sometimes covered with a clammy perspiration, the pulse is small, weak, intermittent, and respiration short, quick and difficult; coma makes its appearance, the patient lies upon his back, slips toward the foot of the bed, there is a jactitation, picking of the bedclothes, and after one or more unsuccessful attempts at reaction, the patient dies. In this last case, the disease terminates fatally as a remittent; this, however, is a rare termination, for if not arrested during the first week, it generally assumes a continued form, and presents all the symptoms of a continued fever.

TREATMENT.—In this, as well as in other diseases, it is of the first importance that any derangement of the stomach and bowels should be immediately corrected. If, therefore, we find our patient suffering from nausea, with ineffectual efforts to evacuate the stomach, we would administer a thorough and efficient emetic of compound powder of lobelia and capsicum. If there is redness of the tip and edges of the tongue, with tenderness on pressure over the epigastrium, counter-irritation, with agents to quiet irritation of the stomach, would be indicated; as an infusion of peach tree bark, or that and dioscorea, equal parts, or an infusion of compound powder of rhubarb and potassa, with sometimes the addition of small portions of morphia. I have found the irritation of the stomach and bowels yield in some cases to the essential tincture of *asclepias*, and small doses of *veratrum*.

The next thing to be accomplished is to reduce the force and frequency of the pulse, and induce a better remission for the administration of anti-periodics. For this purpose we

use tincture of aconite and veratrum, of each thirty drops to four ounces of water, giving a teaspoonful every hour. In the course of a day we will find the fever going down, and the remission will be much more marked. Now, during the remission, we give quinine to arrest the fever. The quantity required will be from ten to fifteen grains divided into two or three powders, the first to be taken as soon as the fever commences to decline, the last one an hour previous to the time when it rises.

Great relief is often experienced by sponging the body frequently with broke-water, or water to which saleratus has been added so as to render it a little slippery. If there is much nausea, or constant thirst, a towel wrung out of cold water and applied to the stomach answers an excellent purpose. If the patient is restless and irritable, especially if the head is hot, bathe it and the face with warm water, allowing it to evaporate. In this, as well as all other fevers, the patient's clothes should be frequently changed, and the bedclothes and everything about the person should be kept scrupulously clean. A person suffering from fever wants but little to eat, but that little should be well prepared. Corn meal gruel, or thin farina, tapioca or corn starch, answers an excellent purpose, and instead of these, nice chicken broth or beef tea may be given.

YELLOW FEVER.

Yellow fever is a disease of warm climates, prevailing principally in the torrid, and southern part of the north temperate zone. It is evidently closely allied to remittent fever, as it prevails in those sections, and those only, which are regarded as malarious. It makes its appearance in an epidemic form in the latter part of the summer, and ceases its ravages with the first frosts. For its production it appears to be necessary, that the causes of vegetable malaria shall exist with intensity; that there shall be more or less decomposing animal matter, with a high range of

heat for many days consecutively. Certain sections of country appear to possess all the elements for the generation of the disease, and hence it makes its appearance with great regularity at such period of the year, as gives the necessary high and long continued heat for decomposition.

Persons who have long resided in those sections have usually an immunity from the disease, which is doubtless owing to such gradual change in the constitution as enables it to throw off the malarial poison; such persons are said to be acclimatized. Persons from the north, or sections free from these malarial poisons, residing in a country where yellow fever prevails, are most liable to the disease. It is generally admitted that it is not contagious, at least not more so than other fevers where decomposition is speedily set up after death, or even before dissolution, as in *typhus*, and some cases of typhoid fever. There can be no doubt that the emanations from such persons are poisonous to those whose vitality has been impaired, and that if absorbed they will give rise to adynamic fever.

SYMPTOMS.—Yellow fever may be divided into three stages, which in many epidemics are well marked, but in others are indistinct. These are, first, a stage of primary fever, lasting from thirty to seventy hours; second, a stage of remission; and third a stage of collapse.

First Stage.—This stage is sometimes preceded for some hours or days with the usual prodromal symptoms of fever. Languor, listlessness, failure of appetite, and more or less pain in head, back, and limbs. Chilliness precedes febrile reaction in a majority of cases, though a well marked cold stage is rare. With the development of febrile reaction, the skin becomes hot, dry and harsh; the urinary secretion is arrested, and the bowels are obstinately constipated. The patient suffers severely with pain in the back, limbs and head, and is extremely restless and uneasy. Much irritation of the stomach exists from the first, with pain and sense of oppression in the epigastrium; in a majority of cases vomiting speedily comes on, and continues through

this stage—the retching and ejection from the stomach being painful and difficult. The eyes are generally suffused, reddened, and very sensitive to light, presenting the appearance that would follow exposure to wood smoke; this has been looked upon as almost a pathognomonic symptom by some. The pulse varies greatly in different cases; in many, it is hard, quick and irregular; in others, small, corded and oppressed; and in others not different from what it would be in a simple remittent. The tongue hardly ever presents the same appearance; sometimes clean, again broad, flabby, and covered with a thin, white coat; again reddened at tip and edges, pointed and coated in the center; and again presenting a thick yellowish, or yellowish brown coat. As before remarked, this stage varies in duration, and there is just as much variation in its intensity.

Second Stage.—The febrile action gradually abates; the vomiting ceases, or is less constant; the pains are much ameliorated; the skin becomes softened, and frequently covered with perspiration. The patient feels comparatively well, though exceedingly debilitated, and has hopes of speedy recovery, and yet, even now, may be noticed that yellowish discoloration, manifesting itself in the conjunctiva, and the skin of the forehead and breast, the precursor of that third stage, from which it is so difficult to recover. This remission, sometimes so complete, can hardly be noticed at others, but the first rapidly passes into the third stage, or collapse. It is always of short duration, not more than from two to ten hours.

Third Stage.—In this stage the pulse becomes very feeble, and the prostration is excessive; the yellow appearance of the skin, which gives the disease its name, becomes plainly visible, and continues to deepen as the disease advances. The irritability of the stomach is excessive; nothing can be retained, but the vomiting now is easy. The material ejected from the stomach is peculiar, being very dark colored, and hence known by the

name of black vomit: this dark colored material has been determined to be broken down blood. Diarrhœa frequently ensues, the discharges from the bowels resembling that ejected from the stomach. The respiration is hurried and difficult, with frequent sighing, and the patient complains of an intolerable oppression and distress at the præcordia. The powers of life rapidly fail; slow delirium or coma comes on, and death soon eases the patient from his intolerable suffering.

TREATMENT.—With the commencement of the disease, bathe the patient's feet thoroughly in hot mustard water, wring a sheet folded out of cold water, and wrap around the bowels and cover warmly in bed. Now, give small doses of podophyllin and cream-of-tartar, about one-fourth of a grain of the first, to ten grains of the second, every two hours until it operates. If there has been considerable nausea and vomiting, give a thorough emetic before using the means named. An infusion of peach-tree bark may be employed to check irritation of the stomach, and warm diaphoretic teas to produce sweating. As soon as a remission in the disease occurs, quinine should be given, about fifteen or twenty grains at two doses, with tincture of gelsemium in half teaspoonful doses every two or three hours.

After this the treatment will have to be conducted on general principles, meeting the indications as they arise. The stomach must be kept quiet, diarrhœa arrested if it appears, the patient's strength kept up by the judicious use of stimulants and nutritious but easily digested food, and especially must normal circulation in the skin and extremities be maintained, and free secretion from the kidneys. Convalescence is slow, and must be managed with great care; any indiscretion in regard to diet or exposure tending to produce a relapse.

COMMON CONTINUED FEVER.

This form of fever occurs in persons of moderate strength of constitution, and when there has been no previous cause acting on the system to lower the vitality, or permanently derange the excretory organs, and the constitution of the blood. At its commencement we notice no symptoms of great impairment of the fluids, though should the disease continue long, such change in the blood will occur as to give rise to *typhoid* symptoms. This is the disease which in the majority of cases, has been designated as typhoid fever, because if allowed to progress, such symptoms become manifest; but more frequently because popular opinion regards the last named fever as an exceedingly dangerous disease, and physicians like to claim the credit of curing it. I use the term typhoid in its literal meaning, "*resembling typhus*," and apply it to those cases exhibiting marked loss of vitality, and commencing necræmia. If it was strictly used in this sense, we could understand better, perhaps, the treatment necessary to its arrest; at least, we would be able to attach some meaning to much that is written about typhoid fever.

CAUSES.—The *predisposing* causes of this, as well as typhoid fever, are all such as occasion temporary exhaustion and want of power in the system to react and expel disease. The *exciting* causes are numerous: as an arrest of secretion, and retention of excrementitious material; the absorption of exhalations from vegetable and animal matter undergoing decomposition; animal miasms, as from healthy persons or animals crowded together, or confined in imperfectly ventilated situations, and without due regard to cleanliness; from persons laboring under disease of any kind in ill-ventilated apartments. "Every population," says Mr. Chadwick, "throws off insensibly an atmosphere of organic matter, excessively rare in country and town, but less rare in dense, than in open districts;

and this atmosphere hangs over cities like a light cloud, slowly spreading, driven about, falling, dispersed by the winds, washed down by showers. It is not *vitalis halitus*, except by origin, but matter which *has lived*, is dead, has left the body, and is undergoing decomposition into simpler than organic elements. The exhalations from sewers, church-yards, vaults, slaughter-houses, cess-pools, commingle in this atmosphere; and, notwithstanding the wonderful provisions of nature for the speedy oxidation of organic matter in water and air, accumulate, and the density of the poison (for in the transition of the decay it is a poison), is sufficient to impress its destructive action on the living, to receive and impart the processes of zymotic principles, to convert by a subtle, sickly, deadly medium, the people agglomerated in narrow streets and courts, down which no wind blows, and upon which the sun seldom shines." I have never as yet seen a case of this or typhoid fever, but what I could discover in the present or previous location of the patient, the presence of decaying animal matter, to account partially, at least, for the character of the disease.

SYMPTOMS.—The *stage of incubation* is generally of some days duration, though when the cause is intense, it may be brief. The patient complains of languor, indisposition to exertion, loss of appetite, irregularity of bowels, dryness of skin, and more or less pain in head or back, and soreness of muscular tissue. These symptoms increasing, at last a tolerably well marked chill comes on, the patient feels cold, especially at the extremities, and chilly sensations pass over the body. These are shortly alternated with flushes of heat, which become more and more marked, until febrile reaction is established. In rare cases, the cold stage is as well marked as in an intermittent, amounting to a rigor; in many the patient hardly notices the cold stage, it is so slight.

With the development of reaction, the skin becomes hot and dry, the urinary secretion scanty, high colored,

and does not deposit a sediment, and the bowels are constipated. The mouth is dry, and the tongue coated with a slightly yellowish-white coat, or in some cases a heavy yellowish coat on base, with a bad taste in the mouth and slight nausea; in others, the gastric mucous membrane being irritable, it is elongated, the tip and edges reddened, but coated white in the center; there is thirst, but not so intense as in the preceding form of fever. The pulse is frequent, full, sometimes hard, especially if there is irritation of the mucous membranes, or cerebro-spinal centers, but rarely bounding. In some cases there is nausea and even vomiting; but if so, the tongue will either be found heavily coated at base, with a disagreeable taste in the mouth, and sense of oppression in the epigastrium, or pointed, with reddened tip and edges, and tenderness on pressure over the stomach.

The condition of the nervous system is variable: sometimes the patient is restless, uneasy, and watchful, the special senses being painfully acute, so that the patient can not bear a bright light, and is disturbed by the slightest noise; at others, he lies torpid, does not appear to appreciate his condition, is but slightly affected with what transpires around him, and lies quiet in one position. In either case there may be headache; in the first it is acute, the face being flushed, and eyes reddened, evidencing determination of blood; in the last it is generally dull, a disagreeable sensation of heaviness and oppression.

The symptoms above named increase in intensity to the third or fourth day, after which the fever exhibits but little change, if uncomplicated, except the increasing debility, until after the seventh day; when, if it does not terminate by the establishment of secretion, either naturally, or by the aid of medicine, we observe symptoms of deterioration of the blood, and prostration, making their appearance, and after a variable length of time a low typhoid condition ensues, and we have in fact to treat a fever of the next variety.

COMPLICATIONS.—This form of fever is frequently complicated with local disease, most generally of an inflammatory character; yet, as the fever is fully developed before the local disease commences, the symptoms of the latter are often very obscure.

TREATMENT.—I believe that this fever can be arrested, in a majority of cases, at any period of its course, previous to the development of low typhoid symptoms, and in this I differ from a majority of the profession. I might have said I know it, for such has been the result in my practice too frequently for it to have been accidental. In giving the treatment, I will here only give the abortive plan, and refer the reader to the next form of fever for other treatment, for if not stopped, there is nothing more certain than that it will assume that form.

There are three principal and well defined indications for the arrest of this disease, and if by medicinal means they can be accomplished, the fever will be arrested. First, to produce arterial sedation, and its attendant relaxation, and a diminution of the heat of the body. Second, to establish excretion, and eliminate the broken down elements circulating in the blood. And third, to restore the tone and integrity of the nervous system.

To accomplish the first, we have the direct and indirect sedatives. I prefer the direct sedatives, but might here remark that unless properly used, they are frequently inefficient, and sometimes even harmful. The influence desired is gradual but permanent sedation, without prostration, and I hold that this can only be obtained in a majority of cases by small doses frequently repeated, giving sufficient time for the accomplishment of the result, say from one to three or four days, according to the condition of the patient. In my practice, I use the tinctures of veratrum and aconite, largely diluted with water, giving from one to two drops of the first, and half the quantity of the second, every half hour, with the frequent use of the sponge bath. The influence is very gradual, but it

is permanent, and as sedation increases, hour by hour, I find increased strength of pulse, a greater equality in the circulation, and better innervation.

As soon as sedation is effected, the patient feels comparatively comfortable; the skin is cool, and it is evident that mild means will now establish secretion from the skin and kidneys. The mild diaphoretic infusions will be sufficient to excite an action of the skin, whilst we act upon the kidneys by giving a weak solution of acetate of potash, (see No. 41.) If from the symptoms we judge there are accumulations in the bowels, producing irritation, we administer a mild cathartic, not otherwise.

As soon as the skin and kidneys commence to act, it is necessary to stimulate the nervous system, so that these critical evacuations may not fail for want of innervation. For this purpose I employ a preparation like the following: Take of quinine, ten grains; aromatic sulphuric acid, one drachm; simple syrup, two ounces; and give a teaspoonful every three hours. Or give equal parts of quinine and hydrastin, one grain of each for a dose, every three hours.

In those cases in which the tongue is heavily loaded, with nausea and oppression at the epigastrium, all treatment must be preceded by a thorough emetic. In this condition, no remedies will produce a favorable influence until the morbid accumulations in the stomach are removed, and if not done, the prostration will be rapid, and typhoid symptoms speedily manifested. If there is irritation of the stomach, this must be first subdued. Counter-irritation to the epigastrium and extremities, with the employment of those agents known to relieve gastric irritation, should be used here. Frequently the employment of stimulant enemata, by stimulating to action the lower intestine, and producing free evacuation, will greatly aid the other measures. The enteric disease should be controlled, as named under typhoid fever.

Though I have here given the treatment in full for this

disease, as I will for the next, it is not to be expected that the family will take the management of such a grave case. It will indicate to them the proper course to be pursued, and thus favor a rational treatment, as opposed to the harsh medication so frequently adopted, and which destroys more patients than the disease itself. The management of the sick will be the same as described under the head of bilious fever, and the next variety of the disease.

TYPHOID FEVER.

It will be recollected that any fever, either idiopathic or symptomatic, will assume a typhoid character, if it continues sufficiently long for the blood to become engaged in a process of decomposition. Now, in all such diseases we notice that there is more or less rapid breaking down of the tissues, and the excretory organs being in such condition that it cannot be freely removed, the detritus of the body remains in the blood. This material is undergoing *retrograde metamorphosis*, and it is a well ascertained fact that in certain conditions of the system this decomposition is propagated in the blood. If these be facts, we can readily see how a patient may be poisoned by the breaking down and retention of his own tissues. Thus, says Dr. Williams, "In several cases of the early stage of the severest form of Bright's disease, in which the urine was very scantily secreted and highly albuminous, I have seen *typhoid* symptoms of the worst character ensue, accompanied by a breaking up and partial solution of the coloring matter of the blood, with the appearance of pus globules in it."

There are causes producing fever which affect the integrity of the blood at the beginning, setting up within it a process of decomposition, which is more or less rapid, according to the degree of vital power in the system. Such causes would produce *typhoid* fever, and if the vital power of the patient was depressed at the time of expo-

sure, the symptoms would be evident from the commencement.

CAUSES.—The *predisposing* causes of typhoid fever are all such as greatly depress the vital power of the system, either temporarily or permanently, and we might say, with truth, that no person, unless originally of feeble vitality, or laboring under some cause that produces depression at the time of exposure, can have primary typhoid fever. It is true that if the cause acting upon the system was very intense, the disease might be rapidly developed. Animal *miasmata* is the exciting cause of the disease, and by this we understand *animal matter in a state of decomposition*. Liebig says, "An animal substance in the act of decomposition, or a substance generated from the component parts of a living body by disease, communicates its own condition to all parts of the system capable of entering into the same state, if no cause exists in these parts by which the change is counteracted or destroyed." Thus, exposure to gaseous exhalations from animal matter undergoing decomposition, or arising from persons suffering from low typhoid disease, the material gaining entrance into the blood through the lungs, will, if there is not sufficient resistance in the system, set up a process of decomposition, which continuing, will give rise to the phenomena we observe in this form of fever. Thus, in those cases in which decomposing animal matter is introduced into the system by a *dissecting wound*, we observe, first a chill, then febrile reaction with great depression, and finally, evidence of complete death of the blood, all the symptoms of reaction being of a typhoid character.

This form of fever may be either *endemic*, *sporadic*, *epidemic* or *contagious*; if endemic, we will find a more or less intense local cause; if sporadic, the miasm may have been speedily generated and dispersed; if epidemic, we have to look to the condition of the atmosphere, as regards moisture and temperature, for the rapid propagation and

spread of the miasm. That in certain conditions the disease is contagious, I believe few will deny. Thus, from a person suffering from low typhoid fever, there is continually given off in the excretions, and from the lungs, matter in a state of decomposition, and if proper attention is not paid to ventilation and cleanliness, these exhalations assume a degree of intensity that will unfavorably impress all that come within their reach, and will give rise to the same form of fever, in those predisposed to disease.

SYMPTOMS.—The stage of incubation is frequently of considerable duration in this disease, the symptoms being those of depression. The patient complains of languor and debility, with giddiness, dullness, and confusion of intellect; the appetite is impaired; uneasiness at the epigastrium, and sometimes slight nausea; a general sense of soreness and stiffness, with more or less pain in the back and limbs, is not unfrequent. These symptoms increasing for two or three days, the patient complains of slight chilly sensations, with coldness of extremities, which becoming more marked, are alternated with flushes of heat. This chill lasts from six to eight hours, but sometimes is prolonged to one or two days.

With the development of reaction, the pulse becomes frequent, full and open, or soft and weak, in some cases soft and easily compressed, or if of a nervous character, quick and sharp. The tongue is generally loaded with a dirty mucus, and is broad, soft, flabby and moist, but sometimes coated in the center, but with reddened tip and edges; there is considerable thirst. In some cases the tongue is heavily loaded, especially at the base, with bad taste in the mouth, and feeling of oppression at the epigastrium, indicating morbid accumulations in the stomach. The urine is slightly diminished in quantity, appears turbid and frothy, but does not deposit a sediment; the bowels are frequently natural as to frequency, but extremely susceptible to the action of medicine; the discharges being thin, pale and frothy. The temperature of

the surface varies greatly, sometimes it is intensely hot and pungent, but more frequently, but slightly increased, with tendency to coldness of the extremities. The countenance is dull, pallid and shrunk, or transiently flushed; the eyes heavy and devoid of luster, and the head heavy, confused and giddy. The patient sometimes exhibits great uneasiness, and is restless, changing his position frequently, but at others is torpid, careless and unimpressible. The respiration is frequently but little affected the first two or three days, but sometimes frequent and suspirous.

By the fifth to the eighth day we find that the head has become more affected, and the mind is confused, the patient reasons with difficulty and answers slowly. Sometimes, even at this early period, we have a partial development of that dreamy delirium termed *typhomania*. The respiration has now become affected, and is short and quick, or labored and suspirous. In many cases symptoms of enteric affection begin to manifest themselves; the bowels are irregular, two, three or four evacuations in the twenty-four hours, watery, yellowish, clay-colored, frothy and foetid. The urine is but little diminished in quantity, but is pale and frothy, resembling whey or new made beer. The patient, in many cases, now begins to complain of tenderness of the bowels, and it will be found that pressure produces pain.

By the tenth or twelfth day, the bowels have become quite loose, the operations frequent and difficult to arrest, with increased tenderness on pressure, and flatulent distension of the abdomen. The coating of the tongue has been gradually changing its color, and is now coated brown, somewhat fissured, or sometimes the coating has disappeared and the tongue is dry, red and glossy; sordes commence to appear upon the teeth and lips. Typhomania has now become fully developed, the patient appears half-asleep, his mind wanders, he talks to himself of his business, his pleasures, or, reveling in the chambers of

memory, he appears to be living his past life over. Sometimes this typhomania is replaced by *coma-vigil*, the patient appears to be in a profound stupor, but is aroused by the slightest sound, to immediately sink back into his former condition. About this time, though sometimes as early as the fifth day, the *rose-colored eruption* makes its appearance upon the breast and neck; this eruption manifests itself in small rose-colored spots about the size of the head of a pin; the color disappears upon pressing the finger over them, but returns when the pressure is removed. Malaria sometimes makes its appearance at this time, in the shape of minute vesicles, filled with limpid serum. The patient has now become so prostrated that he requires assistance to get up in bed, or change his position.

From this to the twentieth day, the diarrhœa becomes worse, the discharges being dark, fœtid and very offensive, and the abdomen very much distended; the coating upon the tongue becomes almost black, and the teeth and lips covered with a dark, offensive sordes. The prostration is extreme, and the stupor profound. Frequently the heat of the surface sinks, the extremities being kept warm with the greatest difficulty; and sometimes there is fœtid perspiration. Petechiæ sometimes make their appearance in the shape of small, purplish-red discolorations, not effaced by pressure; these extending, form vibices. The posture is constantly supine, with tendency to slip down to the foot of the bed. The fæces and urine are now discharged involuntarily, or in some cases there is suppression of urine, which, if allowed to continue, will cause great distension of the bladder, with rapid prostration and death. Subsultus tendinum comes on, with picking at the bed-clothes, and finally jactitation. At last, the vitality of the patient is so far exhausted that there is no longer power to circulate the blood, and the patient dies.

TREATMENT.—The object of treatment at first, is the arrest of the fever, and this can be accomplished, in many cases, by the seventh day, and before the severer symp-

toms make their appearance. The abortive treatment is the same as in the preceding disease, but I will repeat it.

First, if there is evidence of morbid accumulation, in the stomach, this must be removed, or all treatment will prove unsuccessful. I know from personal observation, that where the stomach is thus oppressed, typhoid symptoms rapidly supervene, and the probabilities are that the patient will die; and farther, that such accumulation in the stomach, proves the cause of the rapid development of the enteric disease in many cases. In this case, an emetic precedes all other treatment, the acetous emetic tincture, or compound powder of lobelia and capsicum being my favorite agents; if there is great prostration, a stimulant should be combined with them. The action of the emetic should be prompt and thorough, and aided by warm stimulant diaphoretic infusions, which should be continued afterward to produce diaphoresis, aided by the hot mustard foot-bath, and warmth applied to the body. As soon as the emetic has ceased acting, the special sedatives should be administered in doses just sufficient to continue the influence produced by it. If, in the early part of the disease, the bronchial mucous membrane or lungs become affected, the same treatment should be adopted, with the addition of counter-irritation.

In other cases we commence with the use of the special sedatives, veratrum and aconite, giving them as heretofore recommended. Add thirty drops of tincture of veratrum, and twenty drops of tincture of aconite, to four ounces of water, and give a teaspoonful every hour.

If the skin is hot and pungent, the alkaline sponge bath should be employed, three or four times a day, but if there is deficient capillary circulation, with tendency to coldness of the extremities, a sufficient quantity of tincture of capsicum, added to water, to give the necessary stimulation, should be employed in its stead. The extremities *must* be kept warm, or the entire treatment will fail, because, if they are cold, with deficient capillary circula-

tion in the skin, there is stasis of blood in internal organs, which suffer as well as the blood, and if sedatives are now administered, these conditions are increased, and though the pulse is diminished in frequency, it is also decreased in strength, with still further congestion. Sometimes I find it necessary to order the frequent application of tincture of capsicum, or other strong stimulant, to the extremities, with the constant use of bottles of hot water, etc.

The dose of veratrum named, is about the medium quantity; where there is evidence of congestion it will have to be smaller, if the febrile reaction is vigorous, it may be increased. I do not desire marked sedation under twenty-four hours, and many times not before forty-eight, or seventy-two hours. We will notice, that the above remedies, used in this way, gradually decrease the frequency of the pulse, but it becomes more full, stronger, and especially better in parts far from the heart, with better innervation. At last, the pulse coming down to eighty or ninety beats per minute, we observe evidence of commencing secretion. Now, diaphoretics and diuretics may be advantageously employed, the sedatives being continued in doses just sufficient to maintain its effect. The preparation of asclepias, above mentioned, I use, first, for its gentle stimulant and soothing influence, upon the nervous system, and because it tends to stimulate circulation to the surface, but now it may be continued as a diaphoretic, or other gently stimulant agents used in its place. As a diuretic, I employ a weak solution of equal parts of chlorate and acetate of potash, the medium dose of each being about five grains every four hours.

When secretion has commenced, *but not before*, we resort to quinia to increase innervation; I generally employ it in the following combination: Take of quinine, hydrastin, each, one-half drachm; mix, and divide into fifteen powders, the dose being one every three hours, being governed as was mentioned in the preceding disease.

If it seems necessary, stimulants may be employed in addition.

Then, if the patient shows no tendency to sleep, about nine or ten o'clock in the evening, when every thing has become quiet, a sufficient dose of opium should be given to induce sleep.

During this time, the patient should be freely supplied with diluents, and such light food as the appetite craves, and we think can be easily digested. Every thing in the room and about the patient should be kept scrupulously clean, and the apartment thoroughly ventilated by admitting air from the sunny side of the house, and keeping an open fire in the room. Few persons should be in the room at a time, and the patient's mind kept calm; especially should care be used not to excite expectant attention in the patient by secret movements, whispered conversation, or by failure of attention at the time expected. More depends upon this, than is generally admitted by physicians. We can not "kick nature out of doors, and depend upon the materia medica," as has been advised by a somewhat prominent physician.

When the disease has progressed for some days, and the blood becomes seriously affected, we may not be able to arrest it, at least, not speedily, and we must adopt additional treatment to meet the development of low typhoid conditions.

When tenderness of the bowels is first noticed, the use of dry cups, followed by the application of tincture of arnica, and turpentine, to the abdomen, will be found beneficial. Sometimes warm stimulant fomentations produce a good effect. If, at this time, there is torpor of the bowels, with indications that retained fæces are producing irritation, a *mild* cathartic, carefully administered, will be advantageous; *under no other circumstances should cathartics be employed.* The diarrhœa may be controlled at first, by the employment of any of the mild astringents, frequently the tris-nitrate of bismuth in solution with peppermint-

water and turpentine, acts admirably in doses of three grains of the first, one or two drachms of the second, and ten or twenty drops of the third. An infusion of the bark of the young limbs of the peach tree, in teaspoonful doses, with a small quantity of tincture of xanthoxylum, and one or two grains of geraniin, is one of the best means of arresting it. *Tympanitis* is relieved by the local application of turpentine, demulcent enemata containing the same, and its internal administration with tincture of xanthoxylum. Dr. Stokes strongly recommends enemata of yeast and asafœtida, as the most efficacious means of removing this condition.

The prostration of the nervous system is combated with quinia, bitter tonics, stimulants, and the regular administration of small quantities of nourishment, as beef tea, etc. When manifested by typhomania, or coma vigil, the ammoniated tincture of valerian, with camphor, tincture of cypripedium, or serpentaria, may be used with advantage. If there was imminent danger to the patient, and especially if the discharges from the bowels were copious, I would administer opium, with camphor and warm aromatic spices, the dose of the first being large enough to induce sleep, say from one to two grains.

To control the septic condition of the blood, acid drinks should be freely given, when desired by the patient. The chlorate of potash, combined with hydrochlorate of ammonia, is often useful. When the diarrhœa is profuse, the chlorinated soda, or Labarraque's solution, is probably the best of the chlorides; its administration should be commenced in doses of fifteen drops, in aromatic water, every three or four hours, increasing it as the disease progresses, to thirty or forty drops. Yeast has been employed with advantage in doses of two tablespoonfuls every three hours, with an equal quantity of camphor mixture. It is said by Dr. Stokes "to correct the morbid contents of the alimentary canal, and the consequent symptoms of putrescence, petechiæ, and black tongue,

being more effectually removed by it than by any other means."

With the exception of quinia, I doubt much whether any advantages result from the administration of the bitter tonics. Stimulants additional to those named are required in the advanced stage of the disease, but they must be administered with care; small quantities, frequently repeated, so as to keep up a continued influence, are beneficial, but under no circumstances should the system be over stimulated by large doses, and the stimulant then stopped, for the prostration ensuing might be fatal. Small quantities of bland, nutritious food should be regularly administered, and bland, mucilaginous or acid diluents sufficient to satisfy the patient's thirst.

The patient's position should be frequently changed, and the bed shook up beneath him, and the cover straightened out. This is necessary to prevent injurious pressure on any part, which might give rise to *bed sores*; if any part becomes tender, with dark discoloration, or blanched white appearance, dilute tincture of arnica and means to remove the pressure from the part should be employed. If bed sores form, they should be washed with a solution of sulphate of zinc, from ten to twenty grains, to the ounce of water, and a dressing of mild zinc ointment applied, the pressure being removed. This is generally sufficient for a cure.

If the disease exhibits a tendency to yield during the latter period of its progress, excretion should be aided by *mild* diaphoretics and diuretics, though under no circumstances must an additional amount of heat be applied to hurry their action. As soon as secretion commences, quinia may be given in increased doses with advantage. Convalescence must be managed with great care, when the patient has been thus prostrated. Nourishing food of easy digestion, taken in small quantities, with gentle stimulants and tonics, pure air, light and sunshine, are required. As convalescence becomes established, animal

broths, with easily digested solid food, may be taken, but strictly prescribed by the physician, as to kind, quantity, and frequency.

ERUPTIVE FEVERS.

This class of diseases is propagated by a *specific contagion*, which, gaining access to the blood, generates the same specific virus, and is then thrown upon the surface in the form of an eruption. These diseases are most frequently contracted by the inhalation of gaseous exhalations from a patient suffering from the disease, or from the discharges, and also by personal contact, the morbid material being absorbed from the skin. The most of them may likewise be communicated by *inoculation*, or the introduction of the *virus*, or even the blood of a patient suffering from the disease, under the epithelium by puncture, or from any part of the body, if there is an abrasion. They are not only contagious, but they sometimes become *epidemic*, which is undoubtedly occasioned by some change in the constitution of the atmosphere, inappreciable to us, but which favors the spread of the specific poison. These affections differ from all other forms of fever, in that an attack protects the individual from ever having the disease again, even though being exposed to the cause; to this there are some rare exceptions.

SMALL-POX.

SYMPTOMS.—The symptoms depend much upon the constitution of the patient, the intensity of the cause, and the state of the atmosphere, whether epidemic or not. The disease has been divided into several varieties by authors, according to its intensity; we need notice but two: the *discrete* and *confluent*; the first mild, the points of eruption being distinct and separate, the second severe, the eruption being profuse, and so closely situated as to

run into one another. In describing the course of the disease, the symptoms of the discrete will be first named, and followed by the confluent. We divide the disease into three stages: 1st, of *incubation*; 2d, of *maturation*; and 3d, of *decline*.

Stage of Incubation.—This comprises the period from exposure to the cause, to the development of the chill, and may be from seven to sixteen days, usually about twelve days when the disease is contracted in the natural way. At the time of exposure the patient may feel unpleasantly impressed by the morbid poison, yet frequently no notice is taken of it. Generally about the sixth or eighth day the disease begins to manifest itself by a sensation of weariness, languor, and irregular appetite and excretion. These symptoms increase until the day preceding the chill, the patient now feeling so bad that he can not follow his usual employment. In addition to the symptoms named, the patient now complains of soreness of the muscular tissues, pain in the back, weight and heaviness in the head, and more or less nausea.

The chill varies in intensity, sometimes it is but slight; chilly sensations pass over the body, which after some time are attended with flushes of heat; more frequently there is well marked coldness of the surface, and again a well developed rigor. The chill varies in duration from two to four, or even more hours. During this period the pain in the back and limbs becomes more marked, and there is sometimes nausea and vomiting.

With the development of febrile reaction, the skin becomes hot, the pulse accelerated, the bowels constipated, the urine scanty and highly colored, pain in the head, with greatly increased pain in back and limbs; sometimes the pain is so intense that the patient can not get rest in any position. In the mild or discrete form, the fever may be about as high as common continued fever, though in mild cases, it is sometimes very slight. In the severe, *confluent* form of the disease, the fever is generally intense,

the pain severe, and the patient extremely restless; frequently delirium makes its appearance on the second or third day. In some fearfully intense cases there is marked torpor of the nervous system from the beginning, which is speedily succeeded by low delirium or stupor; the skin being hot, pungent, turgid, and dusky, or the heat confined to the trunk, the extremities being cold.

At the end of forty-eight hours from the chill, the eruption usually begins to manifest itself in the form of minute, reddened papulæ, at first on the face, wrists, breast, and where the skin is thin and delicate, gradually extending over the entire surface, becoming complete about the end of the third or fourth day. When the fingers are passed over these papulæ, they feel like small tubercles in the true skin, about the size of a pin's head; a minute vesicle forms on the apex of each within twelve or twenty-four hours after its appearance, which, enlarging, forms the small-pox pustule. In the discrete form of the disease, these papulæ are not very closely set together, sufficient room existing between them for their full development; they are usually grouped together in threes or fives, with considerable space between the groups. In the confluent form they are closely set together, being very numerous, so that when developed they press against one another, giving rise to erosion of their walls and final coalescence. In the mild form, the fever becomes much mitigated upon the appearance of the eruption; but in the other there is frequently little or no decrease in the fever, delirium being present in many cases.

Stage of Maturation.—This stage embraces the period from the appearance of the eruption to its full development and rupture, usually eight or nine days. The course of the eruption is as follows: The small vesicle increases in size as it fills with a clear whey-colored fluid, and is bound down in the center, giving it an umbilicated appearance. About the fourth or fifth day of the eruption, a red areola appears around the base of each vesicle; com-

mencing intumescence of the skin may be noticed, and shortly the tissue that held down the center gives way, and the eruption becomes pustular, and of a somewhat conical form. From the fifth to the eighth day the pustule matures, the surface becoming rough and yellow, and the cuticle breaking allows a portion of the contents to ooze out, which desiccating, forms the scab. At the commencement of maturation the tumefaction of the skin increases; in the confluent form, the swelling being so great as to close the eyes and efface all the features. The desiccation of the scabs is complete from the eleventh to the sixteenth day of the eruption, when they commence to fall off.

During the period of maturation the symptoms vary greatly. In the mild or discrete form, the fever is never very intense, though it may be continuous, frequently being intermittent, appearing only in the after part of the day. In the confluent form, the fever is more or less intense and continued; frequently there is continued restlessness or delirium. In severe cases there is stupor or delirium; the skin is hot, dry and hard; the eruption comes out on the mucous membranes of the mouth, nose, pharynx, and sometimes larynx or bronchii, attended with tumefaction. This gives rise to difficulty in deglutition and respiration, which is increased by the secretion of a tough, viscid and ropy mucus, requiring a constant exertion on the part of the patient to keep the passages free. If this affection of the mucous membrane is severe, we notice symptoms of gradual asphyxia, lividity of the lips, duskiness of the countenance, and sometimes of the entire surface, with rapid prostration.

In some extreme cases, in addition to the symptoms of prostration above named, the papulæ, when they first make their appearance, become dusky, the skin livid, the pulse sinks, extremities become cold, and the patient dies before the formation of the pustules. In other cases, the areola becomes purplish and livid, and instead of normal

maturation, the pustules are filled with a sanious fluid, or blood, petechiæ make their appearance between the points of eruption, symptoms of prostration ensue, and the patient speedily dies.

On the eighth day of the eruption, or the eleventh of the fever, secondary fever ensues. This, in the discrete form, is not very severe; but in the confluent is generally as high as it was at first. In the last case, it usually lasts from two to four days, when it gradually declines; during this time there is frequently delirium. In some cases, this secondary fever is extreme, accompanied by low delirium, a rapid, weak pulse, and great prostration, when the patient is in imminent danger. Sometimes complications arise during this secondary fever, as inflammation of some part of the respiratory apparatus, the brain, mucous membrane of the bowels, etc., which greatly aggravate it, and may prolong it for an indefinite time.

Stage of Decline.—The fever gradually disappearing, secretion is established from the skin and kidneys. The tumefaction goes down, and desiccation of the scabs progresses. About the fourteenth day of the eruption the scabs begin to be detached, but are not entirely thrown off for two or three weeks. If there has been no ulceration of the skin, the site of the pustule is of a dark, purplish color, giving the skin a mottled appearance; this gradually fades away and disappears in six to eight weeks, though upon exposure to cold they can be noticed frequently for six months. In many cases, at the time of the rupture of the pustule, ulceration is established at its base in the true skin, which causes a loss of structure, and there are pits left in the skin marking the site of the pustule. As a general rule, the severer the disease the longer the convalescence, which presents similar symptoms to that of other fevers.

TREATMENT.—This disease has a determinate course to run, and therefore can not be arrested. There is no doubt, however, but what it may be modified by treat-

ment, and rendered comparatively mild, and its duration shortened. If the doctrine of contagion heretofore advanced is true, means that would lessen the intensity of the febrile exacerbation, would prevent an increased generation of virus, and the same would be accomplished by so keeping the surface that the eruption could readily be thrown out. Now, whether these are facts or not, I know that when this is accomplished, the eruption is comparatively light.

Before the eruption, as we have no positive means of determining that it is small-pox, we would treat it the same as any other fever. For instance: if there was nausea, with indications of morbid material in the stomach, an emetic should be employed; if there was constipation, a mild cathartic. The special sedatives should be employed to lessen the febrile reaction, assisted by the frequent use of the alkaline sponge bath. The patient should not be kept too warm, neither should heating remedies be employed to cause determination to the skin. If there is much restlessness, sleeplessness, and delirium, opium may be used with advantage.

If such course is pursued, few severe confluent cases will be met with. *All heating and irritant applications to the skin, and internal remedies calculated to produce determination to the surface, will increase the eruption and aggravate the disease.* When the eruption makes its appearance, we continue the same treatment, though the sedatives will now be used in small doses. The sponge bath, two or three times daily, should still be used, and continued until maturation is complete; Castile soap and warm water is the best that can be used. Those who have never adopted this plan would be surprised to see the influence that is exerted upon the system by keeping the skin thoroughly cleansed. To prevent pitting, the room should be kept dark, and the face not exposed to the action of heat and light; in addition, all that is required is the free but gentle use of soap and water, and the appli-

cation of sweet oil, when the pustules commence to rupture, to keep the skin soft. During the period of maturation the patient needs constant support, and should, therefore, have a light and nutritious diet; corn-meal gruel is the best article that I have ever employed. If strict cleanliness has been observed, there will be but little secondary fever.

In those cases in which marked lividity of the surface presents itself, either before or at the time of the eruption, with great nervous prostration, an emetic should be administered, and the warm bath prescribed. When there are indications of serious lesion of the blood, those antiseptic agents, named under the head of typhoid fever, should be resorted to. If any complication arise, it should be treated as named under the particular affection, as the treatment will not generally interfere with that for the eruptive fever.

VARIOLOID.

This is but a modified form of small-pox; the system having been partially impressed by the vaccine disease, the variolous affection is very mild. The symptoms are those of the mildest form of the discrete small-pox, though its course is shorter and more irregular. The treatment should be the same as for variola.

VACCINATION.

Vaccination, as a preventive of small-pox, was discovered by Dr. Edward Jenner about the year 1775. Dr. Jenner first noticed, whilst studying medicine, that in the dairy districts of Gloucestershire there was a current opinion that certain persons who had contracted a pustular disease from the cow were exempt from small-pox. His mind was strongly impressed by the fact, and he commenced its investigation. It was not until 1796, how-

ever, that he became sufficiently convinced to attempt the propagation of the disease by inoculation. His first case was entirely successful; the disease was transmitted, and two months afterward, upon being inoculated with small-pox virus, it was found not to have the slightest influence. He published the results of his investigations in 1798, but they were received with incredulity by the mass of the profession, and met with the most bitter opposition from many. The evidence, however, soon became so strong, that vaccination was adopted with eagerness as an invaluable boon, warding off, as it did, the most fell disease of that period.

COW-POX IN THE COW.—The disease in the cow is of rare occurrence, and hardly ever manifests itself except where cattle are collected together in herds. It was stated by Jenner that the disease of the cow originated from the *grease* of horses, being communicated from the heels of the horse to the udder of the cow, by those having the care of them. Whether this was the cause or not, it is a well-proven fact, that the disease of the horse can be propagated to the cow, and thence to man, producing the vaccine disease; and, farther, that inoculation with the matter from the horse will prove a prophylactic, if it is not the same disease. The *Edinburgh Journal of Medical Science* states: "That the matter in use at Vienna, from 1799 to 1825, was partly British vaccine and partly originated from the grease of a horse at Toulon, without the intervention of a cow. The effect was so similar in every respect, that they were soon mixed; that is to say, after several generations, and in the hands of innumerable practitioners, it was impossible to distinguish what was vaccine and what was equine." According to Dr. Jenner, the true cow-pox shows itself upon the nipples of the cow, in the form of irregular pustules. At their first appearance they are commonly of a palish-blue color, or rather of a color approaching to livid, and surrounded by an erysipelatous inflammation.

They frequently degenerate into phagedenic ulcers, the animal appears indisposed, and the secretion of milk is much lessened. The cow is subject to other pustular sores on the nipples, which are of the nature of common inflammation, and possess no specific quality. These are free from all bluish or livid tint, and no erysipelatous inflammation accompanies them. They desiccate quickly, and create no apparent disorder in the animal.

VACCINATION.—This is an extremely simple operation, and yet, from want of care on the part of the practitioner, failure to introduce the lymph is of quite frequent occurrence. Vaccination may be performed with the lymph taken from the vaccine vesicle from the fifth to the ninth day, and this is, probably, the most effectual way of transmitting the disease. It is generally effected, however, from the scab, it being macerated with water, and thus introduced; or a minute portion of the scab is inserted under the skin; and being rendered soluble by the fluid of the part, is thus absorbed. In performing vaccination with the lymph or macerated scab, we dip the point of the common lancet in the matter; and having exposed the arm to the insertion of the deltoid, we make a number of small punctures, just sufficient to elevate the epithelium, when an additional quantity of the virus can be applied and pressed into the punctures with the lancet; a piece of adhesive plaster should then be applied to protect the part. In introducing the scab, the lancet should make an incision so as to elevate the epidermis in the form of a flap; the piece being introduced, it can be retained with adhesive plaster.

PRESERVATION OF VACCINE MATTER.—Vaccine matter is extremely liable to spontaneous decomposition, and can not be kept longer than from two to six months under the most favorable circumstances. The lymph may be preserved for several days, by placing it between two pieces of ground glass, fitting each other accurately; or by cutting pointed pieces of quill and dipping the points

in the lymph two or three times, allowing it to become dry each time, and keeping them from the action of the atmosphere; in this case vaccination is performed by making a small puncture with the lancet, and inserting the pointed extremity of the quill, which should remain in the puncture ten or fifteen minutes. The scab is best preserved by taking two flat pieces of white wax, excavating upon their surfaces a sufficient cavity for the reception of the scab, and then applying them closely together; in order to render the protection more effectual, a warm iron may be passed around the edges, and afterward three or four coats of collodion, or even glue, may be applied.

CHICKEN-POX.

SYMPTOMS.—This is the mildest of the eruptive fevers, rarely, if ever, endangering life, and requiring but the simplest treatment. Like the other diseases of this class, it is propagated by specific contagion, the period of incubation being from six to nine days. The disease is frequently associated with the epidemic prevalence of small-pox, and hence has been supposed by some to be a modification of that disease. It usually commences with a tolerably well-defined chill; fever succeeds of a more or less marked character, and continues with remissions for twenty-four or forty-eight hours before the appearance of the eruption. With its appearance the fever abates, and the little patient feels quite comfortable.

The eruption appears at first as small, red, slightly elevated spots, usually of an oblong figure, with a flat and shiny surface; in a few hours a transparent vesicle is formed upon this, which upon the second day is filled with whitish lymph, and upon the third, has obtained its full size, about one-fourth of an inch in diameter, straw-colored. Many of them are ruptured by the fourth day; those which continue become puckered at their margins, and the lymph concreting, a brownish scab is formed,

which is detached the seventh or eighth day. Many times there are successive crops of eruption, so that the disease may be observed in all its stages in the same individual, and the time is consequently prolonged.

This affection is distinguished from small-pox, the only disease with which it could be confounded, by the formation of the vesicle the first day of the eruption, no depression in the center, and their rapid maturity.

TREATMENT.—Chicken-pox needs but little treatment. We sponge the little patient thoroughly with the alkaline wash, use the hot foot bath, and cover them warmly in bed. Internally we would give an infusion of some of the milder diaphoretics, as sage, or asclepias, a dose of mild physic to open the bowels, and if the fever is high, tincture of aconite as heretofore recommended. The child should be washed once or twice daily, its diet should be light and farinaceous, and exposure to cold avoided. When the eruption comes out freely, there is usually no occasion for medicine.

MEASLES.

This is said to be a disease of childhood, but experience teaches us that the adult is just as liable to contract it, and that it is dangerous in proportion to the age of the patient. Like the other eruptive fevers, it is propagated by contagion, and one attack gives immunity from the disease ever afterward. The period of incubation is from seven to fourteen days.

SYMPTOMS.—Measles usually commence with a chill, sometimes slight, sometimes amounting to a rigor; to this succeeds catarrhal fever; there is frequent sneezing, with stuffing of the nose, redness, watering and turgidity of the eyes, sensibility to light, hoarseness, and dry, troublesome cough. The appetite is lost; tongue coated white, and loaded at base; unpleasant taste in the mouth; sometimes nausea and vomiting; and general arrest of the

secretions. The fever is sometimes intense, with severe pain in the head, back and limbs, and great irritability; it is remittent in its character, the exacerbation being in the after part of the day.

Upon the third or fourth day from the first commencement of the disease, the eruption makes its appearance; first, on the face, neck and breast, then on the arms, hands and abdomen, and last on the lower extremities. At this time there is marked turgidity of the countenance, particularly of the eyes; the tip and edges of the tongue are red, its center and base loaded with a dirty fur, and the fauces exhibit reddened patches, resembling the cutaneous eruption. The eruption at first resembles very much the bites of fleas; as they become developed, they are elliptic and irregular in form, slightly elevated above the skin, of a crimson or lively red color which is gradually shaded off into the adjacent skin, and slightly rough to the touch; when pressed by the finger they momentarily lose their color, which returns rapidly upon removing the pressure. The more acute the fever, the greater the eruption, and the more intense the disease.

With the appearance of the eruption, the cough is many times markedly increased, and becomes very troublesome. There is more or less difficulty of breathing, which sometimes depends upon determination to or congestion of the larynx, at others, of the bronchial tubes, and again of the parenchyma of the lungs. During the period of efflorescence, the fever usually continues unabated; indeed, in many cases, all the symptoms become aggravated as the disease progresses.

On the seventh or eighth day from the commencement, the eruption begins to decline, and the febrile symptoms to disappear, with re-establishment of secretion, and furfurous desquamation of the epidermis.

Measles are severe in proportion to the extent of involvement of the respiratory apparatus, and hence constant care in the examination of these complications is neces

sary. The *sequela*, which are so much dreaded, are chronic inflammation of the larynx and bronchii, or irritability of the pulmonary tissue, causing determination of blood, and eventuating in phthisis. The disease undoubtedly affects the constitution of the blood in many cases, the reparative or reproductive power being so injured that the patient is feeble and liable to any cachectic disease.

TREATMENT.—In some cases of measles the treatment is but a small matter. All that the child needs is to be kept in the house and kept warm. In a majority of cases, however, more is needed than this. Wash the patient thoroughly in saleratus water, or with soap and water, and rub dry, putting woolen clothing next the skin. Bathe the feet in mustard and water thoroughly, put him in bed, and cover sufficiently for comfort. Now give internally an infusion of equal parts of boneset and asclepias, using an inhalation of vinegar and water as described at No. 86, if there is much difficulty of breathing or a severe cough. After the eruption comes out, stop the medicine and give simple cornmeal gruel, thin, so that the patient can drink it freely. Be very careful about exposure to cold, especially for eight or ten days, though it will be better to watch the patient carefully for three or four weeks.

If the child is very sick, with high fever and stupor, the eruption being tardy in coming out, I would use the hot blanket pack, No. 28, adding mustard to the hot water to render it stimulating. If it is a very bad case, I employ an emetic of compound powder of lobelia, No. 6, giving it so as to produce free vomiting. The same treatment is applicable if the above symptoms should come on at any time during the progress of the disease, the eruption going back, or becoming dusky.

If the cough is very severe, with pain in the breast, and difficult breathing, apply a mustard plaster, and follow it with the hot hop fomentation, and give internally the compound syrup of lobelia, No. 82. Of course, in these cases, if a physician can be obtained, the family will

not undertake the treatment, as it becomes a serious disease, attended with considerable risk.

SCARLET FEVER.

This is essentially a disease of childhood, and few persons will take it after the age of twenty. Unlike measles, it is also milder, as the patient is older. It is propagated by specific contagion, either by inhaling the exhalations, or contact with the clothes of the patient. In some seasons it becomes epidemic; doubtless because the poison is so intense as to be propagated readily and at a considerable distance, and the condition of the atmosphere is favorable to the ready spread of a zymotic disease. Scarlatina has been divided into three forms: S. Simplex, S. Anginosa, and S. Maligna, differing in their intensity, severity of symptoms, and fatality. In some seasons the disease will present the character of the first exclusively, in others it will be of the anginose form, and again every case will be malignant.

SYMPTOMS.—From six to eight days elapse after exposure before the disease makes its appearance, and it is usually ushered in with a chill. In *scarlatina simplex* the chill is not very well marked, and lasts but a short time. The fever following presents the common symptoms, increased heat of skin, arrest of secretion, frequent pulse, loss of appetite, etc. In the course of from six to twenty-four hours, the eruption makes its appearance in the shape of patches of efflorescence upon the face and neck, then extending to the body. If the eruption is minutely examined, it will be found to consist of an infinite number of small red points, the rose-colored ground being simply the base upon which they stand. Soreness of the throat, with slight difficulty of deglutition, appears at the commencement, though not usually severe, or accompanied with tumefaction. For nineteen to forty-eight hours after the appearance of the eruption, the fever con-

tinues as before, but then rapidly abates, and in from three to five days the redness disappears, and is followed by brauny desquamation of the cuticle.

In *scarlatina anginosa*, the chill is usually marked, there is nausea and vomiting, pain in the head and back, thirst, etc. The fever which follows is intense, the skin is dry, husky, and burning, the eyes dry and painful, the face congested and tumid, bowels constipated, urine is scanty, frequently voided, and high-colored, and marked irritability of the nervous system. Soreness of the throat, with difficult deglutition, is complained of from the first, and on examination we find the fauces tumid and red, and the tonsils somewhat swollen. The nares are frequently implicated with the angina, and there is consequent stuffing of the nose, with difficult respiration, and consequent increased restlessness. The eruption sometimes makes its appearance during the latter part of the first day of fever, but more frequently not until the second or third day; about the third or fourth day it has reached its hight. At the commencement there appears slight tumefaction of a portion of the surface, which gradually assumes a rose-red color, and the minute red points are developed. These patches increase in size until the greater portion of the surface is involved. During the eruption there is an expression of anxiety and suffering; the child is restless and uneasy, and sleeplessness, which resists the usual means of rest, is caused by the heat and stinging of the surface and soreness of the throat.

The throat affection is here the most prominent feature; the soreness increases, the mucous membrane and subjacent tissue is engorged and tumid, and the secretion from the mucous follicles and salivary glands so viscid and tenacious as to cause great distress. In some cases, ulceration commences by the fifth or sixth day of the disease, and the secretion is difficult of removal and exceedingly offensive; occasionally the ulceration assumes a phagedenic

form, and speedily terminates the life of the patient. Frequently enlargement of the cervical lymphatics commences from the third to the sixth day, and if not promptly treated, terminates in inflammation and suppuration. The fever, under appropriate treatment, commences to abate when the eruption has made its appearance, and disappears entirely by the fourth or sixth day, when desquamation commences. As this progresses, the surface becomes paler, the epidermis exfoliating in whitish scales, or in large pieces when it is thick; sometimes desquamation is retarded for two or three weeks.

Scarlatina maligna might be divided into two kinds, the distinctive symptoms being marked. In the one case there is marked evidence of prostration from the commencement. The chill is greatly prolonged, and the child seems dull and stupid, the countenance vacant or besotted. Febrile reaction comes up slowly, the body becomes hot, the heat being pungent, but the extremities are cold; the pulse is frequent, but soft and fluent, or else small and wiry. Frequently there is nausea and vomiting, sometimes diarrhœa. The tongue is broad, flabby, and covered with a foul, dirty mucus, and the patient has difficulty in controlling its movements. The eruption makes its appearance slowly, the redness being more or less dusky. The throat affection possesses the same characteristics; there is difficult deglutition and respiration, the mucous membrane presenting a dusky, tumid appearance. Ulceration is of frequent occurrence, the surface being foul, the edges ragged, and a strong tendency to phagedæna. Enlargement of the cervical lymphatic glands is very common, with a strong tendency to the formation of a diffusive abscess, and, if the patient lives, to the formation of secondary abscesses. As the disease progresses, the symptoms are all of a typhoid character; there is the dark tongue, sordes on the teeth, feeble pulse, great oppression of the nervous system, tendency to diarrhœa and tympanitis, etc.

In the second case, the disease exhibits but few, if any, premonitory symptoms. The child is attacked suddenly; the chill lasting but a quarter or half an hour, is not well marked, and is succeeded by the most intense febrile reaction. The skin is intensely hot, dry and husky; the mouth parched and dry; the eyes injected, dry, brilliant and painful. The patient is either delirious, or suffers such intense pain as to be almost unconscious of what passes around him. There is nausea and vomiting, the irritation being sometimes so severe that nothing can be retained on the stomach. In these cases the patient is frequently exhausted by the reaction, and dies before the appearance of the eruption, or during the time that nature is trying to throw it on the surface.

In the two last forms of the disease, and sometimes in the simple form, we observe a want of power upon the part of the system to determine the eruption to the surface. In such case, the skin appears tumid and dusky, there is tendency to coldness of the extremities, and marked oppression of the nervous system. In such case, prompt measures must be taken to bring the eruption to the surface, or the patient will die. Again, we observe cases in which the eruption comes out, but from some cause it retrocedes; in this case the same alarming symptoms manifest themselves. In other cases, the anginose affection is so severe, that it seems that the patient has not sufficient power to carry on respiration; sometimes the difficulty depends upon the secretion of a viscid, tenacious mucus.

SEQUELÆ.—Among the most frequent of the sequelæ of scarlet fever, are diseases of the kidneys, consisting of simple exhaustion and want of power to secrete, chronic inflammation and albuminuria. In the first we notice a marked dullness and hebetude, the appetite is poor, the bowels irregular, marked debility and tendency to cachectic disease, the blood being greatly impaired. In the second, the pulse is hard and frequent, the dryness and

huskiness of the skin continues, there is pain and soreness in the back and loins, the appetite is poor, the tongue dry, whitish and fissured. In the third, dropsy makes its appearance when the child is supposed to be convalescing. Continued disease of the throat, and irritability and enlargement of the cervical lymphatic glands is sometimes observed. Ozæna, with weakness and irritation of the eyes, and chronic disease of the ears, attended by purulent discharge and partial deafness, is not unfrequent.

TREATMENT.—If a child has been exposed to the contagion, give it tincture of belladonna, twenty drops; water, four ounces; a teaspoonful every four hours. Let its diet be light; bathe it with castile soap and water every day, and keep its bowels regular. Even when the disease is prevailing in a severe form, this will frequently render it mild; at least it will be shorn of its dangerous features.

We prefer, however, that our children shall not have scarlet fever, if it is in our power to prevent it, as there are none but fears the malady. Great care should be used by parents visiting houses in which the scarlet fever prevails, not to come in contact with the bed or the child, or any clothing that has been used about it, as the poison can be carried in the clothes for a considerable distance, and will remain in them some time. Even the air of the room, if ventilation is not cared for, becomes so infectious that it will poison the clothing of those remaining in it for some time. If a sense of duty calls you to visit cases of scarlet fever, it would be better for you to change your outside clothing, and wash thoroughly, before seeing your own family.

This must not be considered as a light matter, for I have known many instances in which the fever poison was conveyed, as above named, and in one instance an entire family of five children were lost by neglect of these precautions, the mother carrying the disease home with her. As a prophylactic or preventive of scarlet fever, I place great reliance upon belladonna. It must be used in

small doses, as, add twenty drops of the tincture to a common tumbler of water, and give a teaspoonful four times a day.

The mild form of scarlet fever requires but little treatment further than good nursing. At its commencement bathe the child well in saleratus water, rubbing dry; bathe the feet in hot mustard water, and give some simple diaphoretic tea, as sage, pennyroyal, catnip, etc. The belladonna, as named above, may be given every two hours, and if there is much fever, add ten drops of the tincture of aconite to the mixture. For the sore throat, wring a flannel cloth out of good cider-vinegar, and put round the throat, with a dry one over it, changing it as often as every half hour or hour.

Never attempt to manage a case of the severer form of the disease, if you can avoid it. If you can not obtain competent medical advice, I would recommend the following course: Use the bath as heretofore named, repeating it as often as may be necessary to keep down the heat of the surface, bathing an arm, a leg, or a part of the body at a time, keeping the remainder well covered up. Give internally, tincture of aconite and tincture of belladonna, of each, twenty drops; water, four ounces; a teaspoonful every hour to a child four years old. In addition, add hydrochlorate of ammonia, two drachms, to water four ounces, and give a teaspoonful every three or four hours.

If the bath does not seem to agree with the child, rub it with a piece of fat bacon once a day, wiping off as much as possible. If the eruption is tardy in making its appearance, or if, having come out, it goes back, and dangerous symptoms should arise, use the hot blanket pack, adding the mustard, and if the child is very bad, give a thorough emetic.

The throat disease is often the severest part, and requires the most attention. I employ the cold vinegar, as heretofore named, externally, and if it irritates the skin, I substitute a bacon rind. Use an inhalation of equal

parts of vinegar and water, every two or three hours (see No. 86); and as a gargle, employ a strong decoction of the wild indigo. Various measures have been recommended in addition to these, but I would prefer to trust those I have just named, and would advise that no change be made to suit the whims of neighbors who each have their favorite treatment.

In scarlet fever it is very essential that the room be thoroughly ventilated, and no matter what the time of year, a fire in an open fire-place is very desirable. Keep the windows sufficiently open to have a free circulation of air, and let the patient be covered so as to keep pleasantly warm. Keep the patient, the clothing, and all the surroundings, scrupulously clean, as many a child has been lost by lying in a contaminated atmosphere. Let the diet of the child be light, but give it all it wants of appropriate nourishment. Corn-meal gruel is excellent; farina, or tapioca, or mazina, furnish good food, but I prefer new milk to any other article, and give it freely when it agrees with the stomach.

SPOTTED FEVER.

A peculiar form of fever has made its appearance in various parts of this country during the last two years, and on account of the eruption that attends it, it has received the name of spotted fever. It has been supposed to be a new disease by those not conversant with medical literature, but in fact it has been known and described since 1505, when it first appeared in Europe. During the sixteenth, seventeenth and eighteenth centuries it appeared several times, and prevailing over extensive tracts of country, proved very malignant and fatal. It sometimes followed the course of large armies, and was therefore called the war pest or war plague, by the Germans. It first made its appearance in this country in 1806, at Medway, Massachusetts, and from this time up to 1817 it was

met with at different times and in different places throughout the United States, being as fatal then as it has proven this time.

SYMPTOMS.—The symptoms vary in different cases, and also in different localities, but generally they are about as follows: For two or three days the patient is listless, dull and stupid, the face is somewhat flushed and dusky, eyes tumid, some pain in the head and back, loss of appetite, tongue dusky-red and coated with a dirty white mucus, skin dry. He is still able to go around, but feels badly. On the second or third day there is a tolerably well marked chill, lasting for two or three hours, and attended with marked prostration. Following this, we have febrile reaction, sometimes high, at others not very well marked. In the one case the surface becomes intensely hot and flushed, the pulse 120 to 140, sharp and hard, with great irritability and restlessness, though there is marked dullness of the intellectual functions; the urine is scanty, and the bowels constipated; frequently there is difficult respiration, some cough, and sibilant rales. In from two to six days an eruption appears upon the surface, very closely resembling measles, but more clearly defined; if the patient recovers, they commence fading out by the end of the first twenty-four hours, but do not disappear entirely for some days; if the disease progresses they become dusky, and at last livid and associated with vibices. As their color becomes darker, the nervous system of the patient becomes more oppressed, his mind wanders, and, becoming livid, he sinks into a stupor, from which he cannot be aroused, and which in a short time terminates in death.

In the second case there is but little reaction, the pulse coming up to 90 or 100, and oppressed; tendency to coldness of the extremities, the skin being dry and harsh. The eruption appears the first, second or third day, and is a dusky red, not readily effaced by pressure. There is marked dullness and hebetude from the commencement,

and frequently the patient is almost entirely unconscious a few hours after the appearance of the eruption. It runs a very rapid course in most instances, terminating fatally by the third to the sixth day. The eruption becomes dusky and livid, petechiæ appear, the tongue is dry and brown, sordes on the teeth, urine and fæces very offensive, conia or low muttering delirium, and gradually increasing difficulty of respiration.

TREATMENT.—In order to prove successful, the treatment of spotted fever must be prompt and decided. If there is very marked prostration, or evidences of morbid accumulations in the stomach, manifested by a foul tongue, give a thorough emetic of emetic powder. Follow this with the hot blanket pack, making the water strong with mustard; cover the patient warmly in bed, and put bottles of hot water, hot bricks and irons around his body to increase the heat.

Now give internally one ounce of good brandy, and from two to five grains of quinine every two hours until reaction comes on. Continue it in doses just sufficient to keep up the influence, giving the patient a nutritious diet, and recovery is almost certain. This is one of the diseases in which a large number of remedies may be and have been given, but in which but a few do any good, and experience has proven that the above is a very successful treatment.

DIPHTHERIA.

Much has been written about this, the latest epidemic of our country, and the majority have adopted the opinions I expressed in regard to it in the Eclectic Medical Journal of June, 1861. I hold diphtheria to be a general as well as a local disease, as is proven by the *languor, listlessness, torpor of the nervous system, and derangement of the excretory organs*, which, as a general rule, precede the local disease—all being symptoms of perversion of

the blood, and almost invariably indicating the establishment of febrile reaction.

SYMPTOMS.—Usually diphtheria commences with a slightly-marked chill, lasting from two to six hours, though sometimes it is quite severe. Following this, febrile reaction comes up; sometimes slowly and not very well marked, at others quite acute. A very marked feature in this affection, in a majority of cases, is the slow development of the fever and its want of intensity for the first two or three days. About the fourth day of the disease, if not modified by medicines, the fever has assumed a marked adynamic character; the pulse is feeble, soft, and easily compressed, or small and hard; there is marked stupor of the nervous system; pungent heat of the surface, with dry and husky skin; tongue dry and covered with brownish fur, and entire loss of appetite. Subsequently the fever runs the course of a common typhoid fever, unless life is terminated by the disease of the throat extending to the respiratory passages.

At the commencement the patient complains of sore throat, difficult deglutition, and some difficulty of breathing. On examination, we find more or less tumefaction of the mucous membrane of the fauces, tonsils, and pharynx; sometimes of a bright red color, at others dusky or livid, and at others blanched. Upon some of these parts we find the *peculiar exudation* characteristic of the disease, in the shape of patches of an ashen-gray lymph, situated on the surface of the mucous membrane. As the disease progresses this exudation spreads, forming large patches, and sometimes covering all the mucous membrane visible, extending up to the nares and downward to the pharynx. By the fourth or fifth day portions of this become detached and are thrown off, leaving a foul secreting ulcer; there is also a secretion of muco-pus, altogether forming a very unpleasant, foetid discharge in large quantity. Occasionally the affection of the nares is

such that respiration through them ceases; and, again, the muscles of deglutition are so paralyzed, that if the patient attempts to swallow, the ingesta is returned through the nose, giving rise sometimes to imminent danger of suffocation. If the disease extends to the larynx, pseudo-membranous croup is the result, presenting all its characteristic symptoms, and attended with its danger.

TREATMENT.—What are the indications of treatment in such a fever? Plainly they are: first, to reduce the rapidity of the circulation, because we well know that the change in the blood, spoken of above, progresses much slower when the frequency of the pulse is reduced; innervation is improved, and the system placed in such condition that we can get an action from the excretory organs; second, to get secretion from the skin, kidneys, and bowels, as it is through these organs that the morbid material circulating in the blood must be eliminated; third, to increase innervation, for reasons that must be obvious to the reader; fourth, to employ such antiseptic agents as will counteract the septic tendency of the blood; and fifth, to sustain the strength of the patient

Have the patient first thoroughly bathed in mustard and water; or, if the case is a serious one, use the vapor, or spirit-vapor bath, cover him warmly in bed, and give an infusion of pennyroyal or smart-weed. Wring a flannel cloth out of cold vinegar and apply to the throat, covering it with a dry one, and changing it every half hour. In addition to this, let the patient inhale the vapor of vinegar as directed in No. 86, as often as every half hour or hour.

If there is much fever, give the aconite and veratrum, as heretofore directed, twenty drops of the tincture of each to four ounces of water, a tea-spoonful every hour until the fever goes down—then in smaller doses. Now give a mixture—of quinine, ten grains; aromatic sulphuric acid, one drachm, to simple syrup two ounces—a tea-spoonful every two or three hours.

As a gargle for the throat, use a solution of chlorate of potash, as strong as water will dissolve it; or of hydrochlorate of ammonia, two drachms to four ounces of water. To alternate with these, make a strong decoction of wild indigo, and use as a gargle, and give internally in doses of half a tea-spoonful every three hours.

The inhalation of vinegar I consider one of the most important means, and it should be used thoroughly. After the first day the entire person should be sponged once or twice with the alkaline wash; and if there is any tendency to coldness of the extremities, they should be bathed with tincture of capsicum. The diet should be plain as in other fevers, and the same attention must be paid to ventilation and cleanliness.

RHEUMATISM.

Rheumatism has been variously classified—sometimes as a disease of the blood, at others as involving principally the nervous system, again as arising from deficient secretion, and lastly, from an imperfection in the process of digestion and assimilation. Undoubtedly all of these elements aid in making up the disease, as we have now sufficient evidence that it depends upon some material (lactic acid), generated during digestion in some cases, and in others produced during the breaking down of tissues; that this impairs the quality of the blood, and unfits it for the performance of its proper functions; that its non-removal by the excretory organs is dependent upon their impairment; and lastly, that these associated, produce disordered innervation, and when the material is deposited in the tissues it sets up a peculiar form of inflammation which we term rheumatism.

Four forms of rheumatism may be distinguished, though they run into one another, and sometimes rapidly change from one to another. They are, rheumatic fever, acute inflammatory rheumatism, sub-acute rheumatism and

chronic rheumatism. The causes of rheumatism are, cold from sudden changes of temperature—arrest of secretion from other causes, imperfect digestion, and causes that depress the nervous system.

SYMPTOMS.—*Rheumatic fever* usually makes its appearance after exposure to cold, followed by sudden arrest of secretion. It is ushered in with a marked chill or rigor, lasting from one to six hours, during which time the patient not only complains of being cold, but of pain in the back and head, and a dull aching and soreness in all parts of the body. The fever that follows is usually high; the skin is hot, but frequently slightly moist; the pulse hard, and from 100 to 120 beats per minute; the tongue coated white; appetite lost; sometimes nausea and vomiting; bowels constipated, and urine scanty and high-colored. These symptoms usually increase up to the second or third day, when the fever is very intense; after this it continues without change up to the fifth, seventh, or, in some cases, the fourteenth day. There is more or less pain in all parts of the body, and sometimes we find it locating temporarily in the joints of the fingers, wrists, elbows, knees or feet, sometimes continuing very steadily in one or two places, but rapidly changing in others. Usually the swelling in these cases is not very marked, but sometimes the contrary is the case when the local affection resembles the next form of the disease. Occasionally the fever runs so high as to produce delirium, which is followed by prostration, and a low typhoid condition.

Acute inflammatory rheumatism usually commences with a chill, which is followed by considerable fever, continuing for three or four days, or sometimes for a week or more. The local disease generally makes its appearance with the fever, the joints being its most frequent seat, though other parts are at times affected.

If a joint is the seat of the disease, it becomes swollen, red, hot and painful; the pain being most acute, tearing, burning, gnawing, tensile or lancinating. It is not usu-

ally constant as to intensity, but comes on in exacerbations, in which the intensity of suffering is so great as to make the patient cry out. In other parts, the swelling seems to be a mere puffiness of the part, though usually the part is exquisitely tender. The local lesion is so severe, that the part is rendered entirely useless, the slightest movement aggravating the pain, and the patient can not bear the slightest pressure, even of the bed-clothes. In some rare cases the part does not seem red, but more or less blanched.

The disease lasts a variable length of time; in some cases it may be arrested in three or four days, in others from the seventh to the fourteenth day; and if allowed to run a regular course without interference, saving good nursing, it will terminate usually from the second to the sixth week; and in severe cases it may run this long or longer, under the best of treatment. During its progress we may expect great variation in the general as well as local symptoms; the fever at times becomes more intense, and is attended with disturbance of the nervous system, sometimes amounting to delirium. The disease gradually declines, the fever passing off, and the pain, swelling and redness slowly leaving the parts affected.

In *sub-acute rheumatism*, there is usually but little fever; the pulse may be increased five or ten beats per minute, and be more full and bounding, or hard, the skin harsh and dry, the tongue coated, the appetite somewhat impaired, bowels constipated, and urine scanty and deeper colored. These symptoms follow instead of preceding the local affection. One or more parts may be affected, the larger joints suffering most frequently, the smaller ones next, and the aponeurotic expansions and muscles least. When a part is attacked, it commences to swell and becomes hot and painful, though in many cases it is not reddened. The pain, as in the preceding case, is gnawing, tearing, tensive and contusive, or lacerating, though usually not so severe as in the acute form. It does not

change its position so frequently, but still a metastasis is not uncommon. It is full as stubborn as the more acute malady, and in fact I prefer to treat the more acute forms of the disease.

Rheumatism very frequently shifts its position from one part to another in a short period of time. Thus it will change from the right knee to the left in a single night, or from the knee to the elbow. This is called a *metastasis* of the disease. Rheumatism not unfrequently attacks the heart in this way, being by far the most serious feature of the disease. It is evidenced by the feeling of oppression in the region of the heart, pain of a lancinating, tearing character, faintness, more or less difficulty of breathing, anxious countenance, and a small, rapid pulse—symptoms which can not very readily be misunderstood. It may affect the eye, producing rheumatic ophthalmia, or the structures of the ear, the brain, the membranes of the spinal cord, the sheaths of the nerves, and, to some extent, the stomach and intestinal canal.

CHRONIC RHEUMATISM.

It most frequently affects the articulations, they being swollen, tender and painful; one or more may be affected at the same time, usually not more than two, and the amount of swelling, discoloration and pain, varies in different cases; sometimes the tenderness and pain are exquisite, at others it is not very marked; the articulation is in some cases entirely useless, motion or pressure giving rise to severe suffering; at others, though lame, it may still be used. In some cases it takes the form of synovial dropsy, it being very evident that the enlargement is almost entirely dependent upon effusion into the joint. At others the enlargement seems to be dependent upon material within the synovial membrane, but it is not nearly so mobile as before. In other cases there is marked enlargement of the articular extremities, or a dull, heavy,

gnawing pain, with great tenderness, when the bones are placed so as to give rise to pressure on their extremities. In other cases the deposit is undoubtedly outside, involving ligaments, tendons and muscles, that pass between the two bones, causing relaxation in some cases, contraction in others, thus giving rise to deformity. In some cases this is very marked, bones being dislocated, or tendons so shortened as to produce unnatural flexion or extension, or to change the position of the bones, as in the case of the knee joint, the articulation of the tibia being so changed as to produce knock-knee, and turn the toes outward; or, in the case of lumbago, or rheumatism of the dorsal or lumbar portions of the spine, giving rise to spinal curvature and other distortions. If it attacks a group of muscles, we may find them gradually shortening, until a limb is rendered entirely useless, as in the case of contraction of the ham-string muscles, and flexion of the knee, and finally terminating in the almost entire change of the muscular structure.

TREATMENT.—Rheumatism in many cases is a difficult disease to manage, and various plans of treatment have been recommended for it. In a large majority of cases, if normal secretion is established, the local disease will readily yield, but in some forms it still persists. In slight cases of the disease but a few days will be necessary to effect a cure, but in the more aggravated cases it will require from two to six weeks.

In rheumatic fever, give the patient the special sedatives as heretofore recommended, using the hot foot bath, spirit vapor bath, or hot blanket pack. After one or two days, give a solution of acetate or nitrate of potash; half an ounce to four ounces of water; a teaspoonful every three hours; and half teaspoonful doses of tincture of black cohosh at the same intervals.

The same treatment may be adopted in inflammatory rheumatism, but in addition we will require some local application to the parts affected. Common coal-oil makes

almost as good a liniment as I have ever used. Bathe the part freely with it every two or three hours, and keep it wrapped up in new cotton. The liniments named under the head of medicines Nos. 87, 88 and 89, may be used for the same purpose.

In sub-acute and chronic rheumatism, I would recommend the following: Take iodide of potassium, extract of conium, equal parts, one drachm; tincture of black cohosh, one ounce; simple syrup, three ounces; and give a teaspoonful every three hours. In some cases a simple solution of acetate of potash will be all the internal medicine necessary.

Especial attention should be paid to the skin in chronic rheumatism, the patient having his daily bath, with brisk friction, and having the affected parts well rubbed with some of the preparations above named. If the *spice bush* grows in your section of country, gather the berries, press the oil from them, and use it; it is one of the best remedies. But if you can get the advice of a good physician, it will generally be found the cheapest and best in the end.

SCROFULA.

Scrofula, or king's evil, is one of the most common diseases met with, and may be regarded as an evidence of feeble vitality. It is one of the most serious of diseases, though it does not always prove fatal. The causes that tend to produce scrofula are all such as tend to depress vital power, and impair vital resistance. Thus Magendie found that this state could be produced by confining animals in the dark, and in ill-ventilated places, and by feeding them innutritious food.

Scrofula is said to be hereditary; and so it is in this, that the child inherits a defective vitality, which manifests itself in imperfect elaboration of the blood, and enfeebled vitality of tissues and organs. Such persons may live for years without any manifestation of the disease,

simply because there has been no cause acting to further depress vitality, or determine scrofulous deposit. Finally, however, from arrest of secretion or other cause, the system is depressed, and an irritation of some part being set up at the same time, we have full manifestation of the disease.

If we have correctly stated the pathology of the disease, what measures may be adopted to remove this predisposition? Some contend that it can not be removed; but we have evidence sufficient to show that it can be entirely eradicated. To accomplish this we resort principally to hygienic measures, such as will stimulate healthy digestion, secretion, and innervation. Remove the child to the country, let it have plenty of out-door exercise, with accompanying light and sunshine—give it nutritious food, and eschew condiments, pastry, and sweet-meats, and the entire constitution of the child will undergo a change.

Scrofula manifests itself in various ways; very frequently the deposit commences in the lymphatic glands; sometimes in the viscera, as of the lungs, liver, brain, etc.; again in the bones, in the muscles, in the skin—in fact, in all the tissues of the body. The determining cause of the deposit is undoubtedly an irritation of the part, causing determination of blood.

SYMPTOMS.—The symptoms of a scrofulous constitution are not well marked, though it has been frequently described as if it were. It is true, that it occurs most frequently in children of fair skin, blue eyes, light hair, and regular features; but it is so often met with in persons of dark skin, hair and eyes, irregular features, and rough development, that it is impossible to say, by a child's appearance, whether it is scrofulous or not. There is, however, in very many cases, such manifest imperfection in assimilation, circulation, and nutrition, and feeble vitality, that we are enabled to recognize the scrofulous constitution. Usually, the previous history of the family will

throw some light on the matter; but, as Prof. Powell has well demonstrated, the scrofulous constitution may be, and is, often developed in children by incompatibility of the parents.

Scrofula manifests itself when, from any cause, the vitality of the system is so depressed that the blood is not properly elaborated, or the detritus of the system is not removed, either by an imperfection in the process of retrograde metamorphosis, or by failure of the excretory organs. The situation is determined, in all cases, by the existence of a local irritation or inflammation in or adjacent to the parts affected. Thus, we observe scrofulous deposit, and disease of the cervical lymphatic glands, from disease or irritation of the mouth or throat; involvement of the axillary glands, from disease of the arm or breast; of the inguinal glands, from disease of the lower extremity, or genital organs; of the mesenteric glands, from disease of the bowels; of the lungs, from irritation produced by cold; and in the muscles and bones from the same causes. It might be divided into two forms, as it occurs in the lymphatic glands, or as a deposit in the form of tubercles in the structure of a part; but no practical benefit would grow out of such distinction. As we have in other places described scrofulous or tubercular affections of the principal organs, we will confine ourselves here to a description of it as it affects the lymphatic glands.

In many cases the irritation, giving rise to the development of scrofula, is very manifest, and occasionally demands treatment; but in others it is very slight. The superficial lymphatic glands are then observed to become slightly enlarged and hard, so as to be very perceptible when the finger is passed over them. This occurs frequently, in scrofulous children, in the superficial cervical glands, without further development, and is considered by many as the best indication of a scrofulous constitution. When the disease is fully commenced, one or more

of the glands continue to enlarge, a low form of inflammation sets in, and deposit takes place in the adjacent tissues, which become swollen and hard. Now the inflammation becomes more or less acute, the part is reddened, painful, hot, tender on pressure, and the swelling increases rapidly. Continuing in this way for a longer or shorter time, suppuration commences, and the deposit is gradually changed into pus, which in time makes its way to the surface, and is discharged. This occupies a variable period of time, sometimes passing through all its stages in eight or ten days, and at others occupies as many weeks. In some cases the inflammation is acute and the pain severe, but in others it progresses without much redness, heat, or pain.

The pus forms slowly in many cases, and there is but little tendency to its discharge; and in others weeks pass over, the part still continuing hard: and, at last, when our patience is nearly exhausted, suppuration occurs rapidly. Sometimes the pus is well formed and healthy, and when discharged, the part heals readily; but at others it is watery, of a greenish-brown color, or clear, with more or less flocculent material mixed with it. Occasionally the abscess exhibits no tendency to point, but the pus burrows in the tissues for a long time, unless it is opened. In other cases, when the pus is discharged, the abscess does not heal, but continues to discharge a dirty, flocculent pus; and if we examine it, we will find the walls ragged, and often a chain of lymphatic glands dissected out, and lying at the bottom.

The constitutional disturbance varies greatly. Sometimes there is quite brisk febrile action when inflammation first comes up, with loss of appetite, arrest of secretion, and much prostration. In these cases, suppuration is frequently marked with a chill or rigor, and occasionally attended with hectic fever and night sweats. In other cases, there is no constitutional disturbance further than loss of strength, and some derangement of secretion,

languor, and a peculiar pallid appearance of the surface.

TREATMENT.—When children are predisposed to scrofula a judicious hygienic plan should be adopted to strengthen the constitution, by improving the functions of digestion, assimilation and nutrition. Such children are said to be tender, and hence they are kept in the house a considerable part of the time for fear of colds and sickness, and being weakly they are petted, and their appetites pampered; and not spending their time in play, as they should do, their minds are precociously developed at the expense of their bodies. Instead of this, such children should be accustomed to the open air from an early age. As with plants, the human species cannot be robust and stout without fresh air and sunshine. As soon as they commence walking they should play in the open air whenever the weather is suitable. In this way the constitution is strengthened, and the liability to colds by alternations of temperature much reduced. Sleeping rooms should in all cases be large, well ventilated, and exposed to the direct rays of the sun during some portions of the day. Up to the age of eight or ten years, the child's occupation should be out of doors, and whether it was play or work, it should be of such a character as to bring into action all the muscles of the body. Before this age the child should not be required to study, neither should it be sent to school, there being sufficient time after this for all laudable educational purposes. Regular meals of good, hearty food, with fruits in their season, with a sedulous avoidance of all cakes, sweetmeats, etc., are of the highest importance. An observance of these rules, the children being raised in the country, will almost invariably result in a complete change of constitution, and such increased vitality that not only is the predisposition to this disease removed, but the child becomes a vigorous, hearty man or woman, instead of dropping into a premature grave from phthisis or some kindred affection.

In the treatment of the disease, the indications are to, 1st, improve the quality of the blood, and raise it above the point at which scrofulous material is effused, and 2d, to promote the absorption and elimination of such material as may have been deposited. To accomplish these indications various means are resorted to, according to the condition of the patient. Alteratives are relied upon to a very great extent, and various agents of this class are employed. By some the compound sirup of stillingia and iodide of potassium are considered the preferable agents, and are used to a very great extent. My experience has not been favorable to these remedies, and I have been compelled to select others. I now use the *rumex crispus*, *alnus serrulata*, *scrophularia*, *podophyllum*, *corydalis*, and some two or three other agents, sometimes singly, or two or three combined, to suit the indications of the case. Acetate of potassa is my main dependence to promote absorption and elimination by the kidneys. I believe it to be as much more efficient than iodide of potassium, as this is over epsom salts; at the same time employing the bitter tonics, iron, the hypophosphites, and cod-liver oil.

Very much depends upon getting proper action of the three principal emunctories—the skin, kidneys and bowels. Great care is necessary, however, in the severer cases, not to over-stimulate and exhaust these organs. To restore the secretion of the skin I employ—if it is dry and husky—oleaginous frictions, followed by thorough washing with castile soap and water; if soft, relaxed and flabby, I use the bitter tonic baths; if there is deficient capillary circulation, with coldness of the extremities, a sponge-bath of dilute tincture of capsicum.

As a local application to promote resolution, I have used equal parts of tinctures of belladonna and stramonium, and glycerine, or if there is much fever, an equal part of tincture of aconite. In other cases, a wash of equal parts of tincture of muriate of iron and glycerine may be used, or the part may be painted with the iron, and then fol-

lowed by the lotion named. In some cases we obtain good results from the use of the Mayer's ointment or the black salve; finely pulverized Indian turnip, made into a poultice, is an excellent application. If there is much heat and redness, we may use fomentations of stramonium leaves, or a poultice of a decoction of dog-wood and wheat-bran. If it is seen that resolution cannot be effected, we will employ poultices to facilitate suppuration, and if pus has formed to any extent, instead of permitting it to burrow, we will immediately open the abscess. The poultice may be continued for a few days longer, until the inflammation has passed off, when it may be dressed with Mayer's ointment, or other stimulant application, until it heals. If it does not discharge well, and looks ragged, it will be best to use a solution of sesquicarbonate of potassa until suppuration becomes free. And in those cases in which the healing process is slow and the discharge thin and watery, it may also be employed with advantage.

DROPSY.

Dropsy is an effusion of water into the tissues of the body, and is most usually symptomatic of some other affection. In its mildest form it is called *œdema*, and is most usually seen in the lower extremities, the feet and legs being swollen, of a waxy pale color, and pitting on pressure. Dropsy of the *cellular tissues* connecting the skin to other parts, and these one to another, is called *anasarca*. And the third form of dropsy is that in which the fluid is effused into the serous cavities—the abdomen, the chest, the brain, etc.

Dropsy may be *active* or *passive*, in the first case being attended with more or less fever, in the second without fever, the tissues being generally relaxed. The first form of dropsy is most frequently met with after scarlet fever, or during some disease of the kidneys. The second most usually occurs as the result of some local or general debility, and especially of some change in the condition of

the blood. Any cause that depresses the vitality of the system, lessens the plasticity of the blood, and causes relaxation of the tissues, favors passive dropsy.

It may result from disease of the kidneys, they failing to remove the excess of water from the body, or as in Bright's disease, removing a constituent upon which the free circulation of the blood depends. It may arise from disease of the heart, some structural lesion preventing the free circulation of the blood, and proving an impediment to its return from the veins. Dropsy not unfrequently has its origin in disease of the stomach, liver and spleen, though we can not see any connection, other than the effect that prolonged disease would have upon the blood.

Dropsy is very frequently curable, and it often spontaneously disappears, if the cause producing it is removed. If, however, it arises from heart disease, or structural disease of the kidneys, or any of the abdominal organs, it will likely prove fatal.

TREATMENT.—It is not probable, as it would not be wise, for any person to undertake his own treatment if suffering from dropsy, unless it was but temporary. The first thing to be done is to determine the cause, if this is possible, and remove it. Thus, if the kidneys are at fault, the remedies would be directed to them, or if the stomach and other viscera, they should receive attention.

In all cases we obtain much advantage from the use of a tonic and stimulating bath, and from the internal use of tonics and nutritious food, and moderate exercise in the open air. To remove the accumulations of water, remedies are used that carry it off by way of the bowels and kidneys. Thus, if there was nothing to prevent, we might give cream of tartar, one drachm, and jalap, ten to twenty grains, two or three times a day, to produce large watery operations from the bowels. As soon as these are obtained, use the more active diuretics, as an infusion of dwarf elder, or the root of the common elder, or queen of the meadow, to induce a free discharge of urine.

DISEASES OF THE RESPIRATORY ORGANS.

The organs of respiration, as we have already seen, consist of the larynx, trachea, bronchial tubes, parenchyma of the lungs, and the serous membrane that envelops them, the pleura. Each of these may be the seat of disease either acute or chronic, or two or more parts may be involved at the same time. As the function of respiration is one of the most important to life, so are diseases of these parts serious, as they interfere with this function.

We determine disease of these organs by the general symptoms which they give rise to, and by a physical examination of the thorax and organs contained within it. The general symptoms arise from change of function produced by disease, and the influence it exerts upon the system. They are never constant, and in some diseases never entirely sufficient to determine the character and exact seat of the malady. A physical examination determines palpable evidence of disease, in alterations of shape, movement, and sound, and is always positive in its nature.

PHYSICAL EXAMINATION.—The well educated physician determines the character and situation of diseases of the chest, by its form, movement, resonance, and the sounds produced by the action of the organs within. As a general rule, the healthy thorax presents a marked uniformity in the contour of each side, the outlines being rounded and smooth. The slightest variation in shape is recognized by the educated eye, and is used as evidence in determining the trouble. The extent and freeness of the respiratory movement, determines, to some degree, the capability of the lungs to properly perform their function. Variations from normal action indicate disease, and become important when associated with other signs and symptoms.

COUGH.—Coughing arises from an irritation of the sensitive nerves distributed to the various parts of the respiratory apparatus. The purpose fulfilled by the act of

coughing, is the removal of irritating matter which may be in the air-passages, and in a majority of cases it directs our attention to this part of the system as the seat of disease. It may, however, be sympathetic, arising from disease of the stomach, liver, and other abdominal viscera. As the tone or special character of the cough varies, according to the condition of the organs by which it is produced, this change in its character becomes an element in diagnosis. A *hollow* or *barking* cough makes the impression on our mind, that there is lack of expulsive power and want of tonicity in the respiratory organs. It is heard in the last stages of consumption, bronchitis, and sometimes in nervous affections. When *sharp* or *ringing*, it is dependent upon disease of the larynx. A *hoarse* cough is dependent upon some relaxation, with increased secretion, in the larger air-passages. It is observed in incipient catarrh, croup, chronic laryngitis, and anginose affections. In asthma the cough is wheezing; in certain diseased conditions of the larynx it is belching; and paroxysmal in whooping-cough and hysteria. It may be dry, indicative of want of secretion; or humid and moist, showing that secretion has taken place.

The character of the sputa may be studied with reference to quantity, quality, consistence, form, composition, color, and odor. The sputa is scanty in the first stages of active inflammation of the lungs, bronchii, larynx, pharynx, and posterior nares, and is frequently entirely wanting. It is also scanty in some cases of chronic disease—as bronchitis, laryngitis, phthisis, etc., the cough being dry and rasping. It is more copious toward the close of acute disease, and very abundant in many chronic diseases of these organs—as in *broncorrhœa*, where a pint or quart of mucus is thrown off in the course of twenty-four hours. In consistence it is serous or watery in the forming stage of bronchitis, pulmonary congestion, and vesicular emphysema. It is mucous and more or less viscid, as the result of acute inflammation of the mucous lining

of the air tubes, as we see in bronchitis, pneumonia, and laryngitis. It is purulent as seen in the third stage of pneumonia and phthisis pulmonalis; or a muco-pus, as in some cases of bronchitis. It sometimes contains small roundish masses, either tubercles or desiccated mucus—the difference being determined by the cheesy consistence of the first, and the tenacity of the second when rubbed down with water. Blood, either fresh, bright, and fluid, or dark, clotted, or broken down, is frequently a constituent.

PERCUSSION.—Percussion, popularly known as “sound-ing the lungs,” is employed to determine the extent to which air enters the lungs. A vessel or body, containing air, gives a certain degree of resonance when struck—depending upon the elasticity of its walls, and the amount of air contained within it. A drum is very resonant, because it possesses these in the highest degree; a barrel is less resonant, because its walls are not so elastic. Now, if we fill the drum with sponge, the resonance will be greatly diminished, but it will still exist; but if now we fill it with water, the sound will be flat and dull, and without resonance. This represents, to some extent, the thorax; its walls are elastic, and usually the lungs contain a large quantity of air, and the resonance is very marked when the walls of the chest are struck; but in proportion as the lungs become solid from disease, the sound becomes dull, until, at last, it is flat like striking on the fleshy part of the thigh.

AUSCULTATION.—In health, the passage of the air into and out of the lungs during respiration, gives rise to two very marked sounds. One produced in the bronchial tubes is called the bronchial sound; the other, arising in the air cells, is called the respiratory murmur. As these sounds will vary according to the condition of the part in which they are produced, so this variation tells us the condition of the organ. Not only so, but adventitious or abnormal sounds are developed, and are indications of certain changes of structure.

To the physician who has thoroughly studied this subject, disease of the lungs is as easily determined as if he could be permitted to remove and inspect the organs. Not unfrequently this knowledge becomes a means of saving life, by determining a diseased condition in its early stage, whilst it may be arrested by medicine and hygienic measures.

A BAD COLD.—A cold is the most frequent of complaints—in fact, there is no one but what has one or more attacks, light or severe, during the year. What is a cold, and how is it taken? Cold is a partial arrest of the secretions, and a sub-inflammatory condition of the internal lining of the body—the mucous membranes. The causes of colds are all such as tend to arrest secretion from the skin, and drive the blood to internal organs. Thus, a person who has temporarily exhausted his vitality by active exercise, sits down on the damp ground, or in a draught, or takes off part of his clothes, and gets cool suddenly, and the next day finds that he has “caught cold.” Wet feet is a frequent cause of cold, as is also damp or insufficient clothing, change from thick to thin clothes, and sudden changes of temperature.

The common symptoms of cold are usually a stopping up of the head, a dull, heavy headache, pains in numerous parts of the body, dry skin, constipated bowels, and some loss of appetite. At times it affects the lower air passages to a greater extent, and the person feels an oppression and weight about the chest, slight difficulty of respiration, and has more or less cough. In the first case the more marked symptoms disappear in two or three days, leaving nothing but a disagreeable running from the nose, a hawking of mucus, with sometimes slight headache. In the second, the cough continues for some days or weeks, with expectoration of a whitish-yellow mucus.

TREATMENT.—In many cases, at the very commencement, all that will be necessary is to have the feet thoroughly bathed in the evening in hot mustard water, drink

freely of warm ginger, composition or pennyroyal tea, and cover up warmly in bed. If the bowels are costive, a couple of podophyllin pills may be taken. If the cold is more severe, use the spirit vapor bath, or blanket pack, or wet sheet pack, with the diaphoretics named, and follow the succeeding day with small doses of tincture of aconite, or a solution of acetate of potash. When the difficulty of breathing and oppression of the chest is very marked, I would advise a thorough emetic, using the emetic powder No. 6.

QUINSY.

The tonsils in some persons appear to be predisposed to inflammation, and from the action of cold upon the system and atmospheric vicissitudes, they suffer frequently and severely from this affection. The predisposition to return is the worst feature of the disease, and the most difficult to remove. Both tonsils are usually affected at once, or in succession, but sometimes the disease is confined to one.

SYMPTOMS.—Quinsy usually manifests itself first, by soreness and stiffness of the throat, with difficult deglutition, and more or less derangement of the digestive functions; occasionally it is ushered in with a marked chill, followed by febrile reaction. There is always some fever, dryness and constriction of the skin, and general arrest of secretion. In a few hours the patient complains of pain, and a sensation as if some foreign body were present in the throat, with heat and constant desire to swallow. When fully developed, deglutition becomes so difficult and painful as to occasion extreme suffering, and in some cases it is impossible. A guttural cough, with frequent desire to remove the secretion from the throat; a hoarse and difficult respiration, and confused whispering, and guttural articulation, or sometimes entire loss of voice is observed. In the severer cases it becomes impossible for the patient

to lie down, and in many but little rest is obtained, in consequence of the difficult respiration when the will is in abeyance. If we examine the throat in this disease, we will find the tonsils enlarged, and reddened; sometimes so large as to entirely close the opening of the fauces.

An attack of quinsy continues for a variable length of time, usually from four to twenty days, and terminates sometimes by resolution, at others by suppuration. When it terminates the last way, the gland rapidly enlarges; there is a dull, throbbing pain or aching, and a yellowish color near where the pus points; usually it readily comes to the surface and discharges without assistance, but sometimes it is very slow and requires the lancet.

TREATMENT.—In the first stage of the disease, we direct the hot foot bath with the free use of a nauseant diaphoretic, as the eupatorium, small doses of lobelia with infusion of pennyroyal, sage, etc. At the same time the patient should inhale frequently the vapor of vinegar and water, of camphor and vinegar, or of equal parts of vinegar and water holding in solution a considerable portion of nitrate of potash. As a local application to the throat, the tincture of veratrum, applied with a probang, two or three times daily, or oftener, is the most efficient remedy I have ever used during the first day or two. Gargles are not very serviceable in this stage of the disease, but the throat may be cleansed with dilute vinegar, solution of nitrate of potash, or muriate of ammonia and mucilage. Warm fomentations are very frequently resorted to, but without favorable results; I prefer the simple cold vinegar pack, or the application of a cold terebinthinate embrocation. A brisk cathartic in the early stage is often of benefit, and occasionally it is necessary to repeat it.

In the *asthenic* forms of the disease, occurring in persons of feeble health, or in those in which the structures have been permanently impaired by its frequent recurrence, a stimulant and astringent local treatment is better. Thus,

we direct a gargle of alum, of solution of tannic acid and capsicum, as heretofore named, strong tar water, pyroligneous acid, sulphate of zinc, etc. In these cases inhalations of camphor, myrrh, pyroligneous acid, tar, etc., with vinegar, will be found useful. Here we find the cups to be the best external application, followed by warm fomentations of lobelia, hops, etc.

If the disease continues, after sufficient time has elapsed to produce resolution, it is better to resort to warm fomentations or poultices, with the internal use of demulcents to favor suppuration.

CROUP.

Croup is a disease of the larynx, or upper part of the air-passages, and is one of the most common diseases of children. Though generally occurring in childhood, we sometimes see it in the adult, and occasionally even in old age. It is divided into three forms—the *mucous*, *pseudo-membranous* and *spasmodic*. All forms of croup excite fear and dread in the minds of parents, and while some are among the severest diseases we meet with, others are attended with but little danger. Spasmodic croup is the mildest form, is of tolerably frequent occurrence, and rarely attended with danger. Mucous croup is the most frequent variety, and though a severe disease, it is generally managed with ease, if taken in time, and treated properly. Pseudo-membranous croup is a fearful affection, and has been attended with a greater mortality than almost any other disease.

SYMPTOMS OF MUCOUS CROUP.—This form of the disease is frequently preceded by well marked symptoms of coryza, and sometimes a stuffing up of the breast, slight difficulty of respiration, a cough, and a general “bad cold.” The attack of croup generally comes on at night, the little patient being restless and uneasy, and the respiration rough and whistling. Soon it awakes with a

hoarse croupy cough and sensation of choking, appears frightened, breathes laboriously, and continues the cough until a portion of mucus is raised, when the spasm passes off, and it breathes freer. In a short time respiration becomes permanently difficult, and there is a peculiar whistling and gurgling as the air passes through the larynx.

The cough is hoarse, shrill, gurgling, with a marked ringing metallic sound. The voice is changed, becoming shrill and piping, and at last sinks to a whisper, even the cry being whispering at first, terminating in a shrill piping sound. If the child sleeps, mucus accumulates in the throat, the breathing becomes more and more difficult, and at last the child awakes with symptoms of imminent asphyxia. At first the skin is dry, its temperature slightly increased, and the pulse full and hard; but as the respiration becomes more difficult, a cold, clammy perspiration breaks out, the extremities become cold, and the pulse frequent and feeble. The difficulty of breathing, and other symptoms continuing to increase, the disease terminates fatally from twelve to forty-eight hours from its commencement.

PSEUDO-MEMBRANOUS CROUP.—This form of the disease comes on slowly and insidiously; the first symptoms being a dry whistling inspiration, a slight metallic cough, and some alteration of the voice. These symptoms continue to increase for two, three, or four days, or more, before the final paroxysm, the child meanwhile appearing tolerably well, with the exception of the symptoms named. The day previous to the final attack, these symptoms frequently become so marked as to excite notice, and mild measures are used for its relief.

Finally, the respiration becomes very laborious, both inspiration and expiration being hard and whistling. The cough is hoarse, dry, ringing and metallic. The voice sinks to a whisper, is shrill and stridulous. The ear applied to the larynx detects at once the evidence of

stricture, and the want of secretion. As the disease progresses, the child is attacked by fits of suffocative cough, the lips become livid, the countenance congested, the extremities cold and clammy, coma makes its appearance, and the child dies.

SPASMODIC CROUP.—This is the most frequent form of the disease, and is dependent, doubtless, on slight inflammation, giving rise to spasmodic contraction; cold and sudden atmospheric changes being the most frequent causes. Like mucous croup, it usually comes on at night, though the breathing may have been difficult, with a croupy cough and voice, through the preceding day. The child is usually awakened by difficulty of breathing, a hoarse, ringing, metallic cough, and a shrill whispering voice or cry. In some cases there is slight secretion, but in others none at all. The difficulty of respiration increases for a few minutes, or in some cases for an hour or two, then gradually passes off; sometimes there are marked exacerbations and remissions occurring every few minutes. There is but little derangement of the secretions or circulation, and it is not difficult to detect the spasmodic character of the affection.

TREATMENT.—In *mucous* croup I generally employ equal parts of acetous tinctures of lobelia and sanguinaria, and simple syrup, giving it in teaspoonful doses sufficiently often to produce and keep up continuous nausea. Continuing this until, from the peculiar loose, gurgling sound of the respiration and cough, we know that the secretion is less tenacious, we carry it to thorough emesis. Sometimes this ends the disease, but at others it is necessary to still continue the remedy, and repeat the emetic two, three, or more times. As an adjuvant, though a very important part of the treatment, we use applications of water and vinegar to the throat, as hot as it can be borne, and renewed frequently; or the compound stillingia liniment, heretofore spoken of; or a plaster made by sprinkling snuff on a cloth spread with lard, or, in quite

young children, the emetic powder used in the same way. Counter-irritation to the spine, with the hot mustard foot-bath, and the general sponge bath, if the skin is dry and constricted, are very useful. Inhalations of vinegar and water, or of vinegar, tend to relax the parts, and thus give temporary relief; and by rendering the mucus less viscid, they aid the permanent cure.

In the *pseudo-membranous* variety, the indications are to produce relaxation, and thus prolong the patient's life, and give a longer time for the action of medicine to cause effusion beneath the false membrane, and break down its plasticity; and having thus caused its partial detachment, to cause its removal by an act of emesis. To fulfill the first indication, we direct the continuous application of flannel cloths, wrung out of hot water, to the throat, the use of the stillingia liniment; or, if the case is urgent, the oil of lobelia applied freely. In addition, I have found inhalations of vinegar of marked importance, and in some cases I have added the extract of belladonna and the tincture of gelseminum. Cups to the throat prove very serviceable in many cases; but rubefacients should not be used. The hot mustard foot-bath and counter-irritation to the spine are also useful.

Internally, I employ acetous tinctures of lobelia and sanguinaria, each one fluid ounce; molasses, one ounce; chlorate of potash, finely powdered, one drachm; mix, and give to a child, two or three years old, a teaspoonful every five or ten minutes, until nausea is induced—then less frequently. If there is much constriction of the skin and excitation of the pulse, I add the veratrum in suitable doses. The remedy above named should be given without any fluid either before or after it, as we desire its local influence as it is swallowed, as much as its general influence when taken into the stomach; in no case should it be allowed to produce vomiting until we have direct evidence, in the gurgling and flapping sound of respiration, that the false membrane is becoming loosened.

If the tendency to vomiting should be strong, I direct the sinapism to the stomach, and an infusion of peach bark with the nauseant, as an anti-emetic. A variable length of time will elapse before the pseudo-membrane will be loosened sufficiently to be discharged—sometimes five or six hours; in one case that I treated, sixty hours. When, from the sound, we are satisfied the detachment is sufficient to permit the evacuation of all or part, we induce speedy emesis, usually with an infusion of our common emetic powder, as preferable to the agents we have been using. The more thorough and effective the emetic, the greater the chance of safety, though in some cases we find the false membrane thrown up in shreds by coughing, without any indication for an emetic at all. Usually the lobelia and sanguinaria, used as above directed, and continued for so long a time, act upon the bowels, sometimes giving rise to great irritation; in such case, agents to obviate this must be employed. The treatment is brief, but nothing can be added to it in our present knowledge of the materia medica, and there are no agents we can substitute for those named, and no preparations of the agents but the acetous tinctures.

Spasmodic croup is easily treated; very frequently the compound tincture of oils of lobelia and stillingia, heretofore named, freely applied externally, with the internal administration of a drop, every half hour or hour, on a lump of sugar, answers our purpose; or the warm onion poultice to the throat, with the internal use of almost any nauseant, succeeds.

The compound of lobelia, named under the head of mucous croup, is very efficient; in fact, the entire treatment named there may be adopted in this case. Generally, however, the milder the measures for relief, the better it will be for the patient, as the stronger agents so change the action of the bronchial mucous membrane as to prove a source of difficulty.

CHRONIC LARYNGITIS.

SYMPTOMS.—Chronic laryngitis usually comes on slowly and insidiously, the patient being hardly aware that he is suffering from a serious disease, until it is confirmed. The first symptoms are soreness of the throat when speaking, with constriction, slight alteration of the voice, cough, and expectoration, which comes on after slight exposure, or over-exertion of the larynx. These symptoms are ameliorated in a short time, and the patient thinks it but a slight cold, from which he is recovering. As time advances, however, the attacks become more frequent, last longer, and do not so nearly disappear. The disease being fully established, there is a constant uneasy sensation in the region of the larynx, the voice is seriously altered, and there is a constantly annoying cough, with expectoration. The expectoration is at first scanty and mucous; but, as the disease advances, it is muco-puriform, sanious, concreted into lumps, or consists of almost pure pus. Hemorrhage occurs in the latter stages, sometimes in very large quantity. If the throat is examined, we notice the evidence of chronic inflammation of the fauces, pharynx, and epiglottis, and we reasonably suppose that the mucous membrane of the larynx corresponds in appearance; with the laryngoscope we are enabled to view the internal surface of the larynx, and determine its condition tolerably accurately.

The impairment of the general health is usually in direct ratio to the severity of the local affection. At the commencement, the patient complains simply of debility, with some failure of the digestive organs, and sometimes torpor of the secretions. When it has progressed for some months, he is unable to attend to business; there is loss of flesh and strength, marked impairment of the digestive functions and of excretion. Now, frequently the system becomes so depressed that tubercles are deposited in the lungs, the symptoms of phthisis are developed, and the disease runs a rapid course to a fatal termination.

TREATMENT.—Under no circumstances should a person undertake to treat himself for this affection; better go a hundred miles and get the advice of a good physician.

ACUTE BRONCHITIS.

Bronchitis is a disease of tolerably frequent occurrence, and, as its name implies, is an inflammation of the bronchial tubes. We may divide it into two varieties, catarrhal and sthenic bronchitis, the first being a mild and the other a very severe disease.

SYMPTOMS.—*Catarrhal bronchitis* commences as a common cold, the patient feels dull and languid, frequent chilly sensations alternated with flushes of heat, increased secretion from the nose, dry skin, constipation of the bowels and headache. In a short time the patient complains of a sense of dryness and roughness, and makes frequent attempts to clear the throat. A hard, dry cough, more or less hoarse, is soon developed, and seems to be rendered much worse by tickling in the fauces. The voice is frequently hoarse, there is a sense of tightness and constriction of the thorax, with slight pain and soreness in coughing or drawing a long breath. In some cases the febrile reaction is quite marked for the first two or three days. By the second or third day the patient commences to expectorate a thin glairy fluid, which, rising to the glottis, greatly increases the desire to cough. By the fourth or fifth day the secretion has increased in quantity, is yellowish and opaque, and is raised with greater freedom. The constitutional symptoms now disappear, though the cough may continue for several days, and the patient soon recovers.

Sthenic bronchitis is frequently preceded for a short time by coryza, oppression of the chest, languor, listlessness, arrest of the secretions, etc. In a short time marked chills or rigors are noticed, sometimes the chilly sensation will continue for twelve or twenty-four hours, not very

severe, but annoying to the patient. The chill is followed by fever, generally remittent in character, being the highest in the afternoon and evening; the skin is hot, dry and husky, the pulse frequent and hard, the mouth dry, tongue coated white and contracted, bowels constipated, and urine scanty and high colored. With the first appearance of febrile reaction, a hard, dry and deep cough makes its appearance, the respiration becomes laborious, and there is dyspnoea and oppression of the chest. Generally within the first twenty-four hours a dull pain is experienced on coughing.

Expectoration commences from the third to the sixth day. At first it is a clear, transparent mucosity, secreted in small quantity, and raised with difficulty. In a day or two it is a tough, glairy mucus, resembling white of egg, and in most cases streaked with blood. As a general rule, it may be stated, that the greater its tenacity, the more intense the inflammation of the mucous membrane secreting it. This mucus is expectorated with difficulty; it accumulates, gives rise to cough, which is much protracted, lasting sometimes for minutes before the adhesive mucus gives way. The physical signs have not yet changed materially, though the sibilant rhoncus has become modified, and as mucus accumulates previous to coughing, is changed to a mucous sound. The febrile symptoms are still intense, and the difficulty of respiration and oppression of the chest as great.

From the fifth to the eighth day a marked change is noticed in the mucus expectorated; it now contains opaque, yellowish, greenish or white masses, suspended in the glairy mucus. These increase in quantity as the disease progresses, until the entire expectoration possesses these properties. With this change in the expectoration the fever gradually abates, the secretions are restored, the appetite returns, the patient rests at night, the cough not being so troublesome, and the breathing becomes easy. The amendment continuing, by the eighth to the twelfth

day the patient is convalescent. This may be said to be the natural course of the disease; but these changes can be very much accelerated by medicines, and the disease made to run a much shorter course.

TREATMENT.—The treatment of catarrhal bronchitis will be nearly the same as that laid down for cold, further than it will be well to apply hot fomentations to the chest, and give the aconite and veratrum. In the severer cases, commence with the use of the spirit vapor bath, common vapor bath, or blanket pack, giving freely an infusion of boneset, or similar agent to produce sweating. Put the patient in bed and give of an infusion of the emetic powder, a tablespoonful every hour, or sufficient to induce nausea, and continue it until the patient commences to expectorate freely. In addition to this, add tincture veratrum thirty drops, tincture of aconite twenty drops, to four ounces of water, and give a teaspoonful every hour or half hour to control the fever.

Much benefit is obtained from the use of the hot fomentation, or a poultice of bran or cornmeal applied to the chest. In some cases we use dry cups. We also use the alkaline bath sufficiently often to keep down excessive heat of the skin. When expectoration commences, or even at first, we may use the compound sirup of lobelia, No. 82, to control the cough, and facilitate expectoration. If expectoration becomes abundant, use the stimulant expectorant, No. 85.

CHRONIC BRONCHITIS.

Chronic inflammation of the bronchial mucous membrane is of frequent occurrence, and may result from many causes. A badly treated acute bronchitis may terminate in the chronic form, or an inflammation of the lungs may set up a subacute bronchitis which will continue after the original disease has subsided. The most frequent cause is doubtless the neglect of catarrhal bronchitis; the acute symptoms ceasing, the patient pays but

chitis; the acute symptoms ceasing, the patient pays but little attention to the cough, and the persistent chronic disease is the result. In many cases the progress of the disease is slow and insidious, in others quite rapid. In the first case the patient is troubled with cough during the winter and spring months whenever exposed to the cold, but which passes away with the return of warm weather. The next winter he seems to catch cold easier, and the cough is more persistent, and does not entirely disappear during the summer. With the return of cold, changeable weather, all the symptoms are aggravated, and the general health suffers, the disease being permanent. Thus one, two, or more years may be required for its development; in other cases it follows "the cold in the chest," or the acute attack.

SYMPTOMS.—In chronic bronchitis, we have both local and general symptoms. Cough seems to be at once the most characteristic as well as troublesome feature. The cough is persistent and annoying, generally of a deep bronchial character, but sometimes short and hacking, at others, asthmatic. It is dry or moist, depending upon the amount of secretion from the bronchial mucous membrane. Sometimes it is attended by a dull, heavy, aching pain, or sense of soreness on coughing. At others the chest is entirely free from pain.

Expectoration varies greatly as regards quantity and appearance. Sometimes it is very scanty, the cough being dry and harsh; at others there does not seem to be any great accumulation in the bronchial tubes, though expectoration in moderate quantity attends each paroxysm of cough; lastly, we observe cases in which expectoration is profuse, the patient being obliged to cough to remove the accumulations from the chest. We thus divide chronic bronchitis into two marked varieties: *bronchitis with deficient secretion*, and *bronchitis with profuse secretion*. The material expectorated varies from a thin, transparent, adhesive mucus, to a yellowish or greenish opaque mucus or muco-pus.

TREATMENT.—The treatment of chronic bronchitis may be properly divided into general and local, and as much importance attaches to the one as the other. Of course the general treatment will have to be varied according to the complications; but the following points deserve especial attention: The appetite and digestion being frequently impaired, it is necessary to administer such mild tonics as improve the tone of the digestive apparatus, and at the same time improves the quality of the blood. Frequently these can be selected with reference to their action, either direct or indirect, on the pulmonary mucous membrane. The bitter tonics, the mineral acids, hypophosphites and *nux vomica*, are found important curative means. The excretions must be restored, and to accomplish this the milder agents are of greatest utility. The bowels being constipated, mild laxatives are indicated. The secretion of the kidneys affected, those agents termed alteratives, that are known to facilitate this secretion, are the best adapted. The skin demands our especial attention, from the intimate sympathy existing between this membrane and the mucous lining of the body. If it is dry and harsh, the use of the alkaline sponge-bath, with brisk friction, seems to be of much benefit; if there is imperfect capillary circulation, with coldness of the extremities, the capsicum bath is important; and if there is much relaxation, the addition of an infusion of some bitter tonic, or astringent. Iron is useful in cases of anæmia or imperfect nutrition, the hypophosphites, sulphur, and quinia, when there is deficient innervation, and *nux vomica* or other permanent stimulant when the patient exhibits an apathy not accounted for by the symptoms of the disease.

Those cases in which the expectoration is scanty, or in which the cough is dry and harsh, are benefited usually by the employment of nauseant expectorants, to increase secretion. The *lobelia*, *sanguinaria*, *ippecacuanha*, etc., can be employed for this purpose with advantage; and it is generally a good plan to combine with them a *demul-*

cent, to relieve the dryness and irritation of the throat and fauces, and a narcotic to allay the morbid irritation of the nervous system.

In many cases the compound tincture of oils of lobelia and stillingia, in drop doses every three hours, is an effectual remedy for the cough. In other cases I would recommend compound syrup of lobelia, No. 82, or the compound syrup of elecampane, No. 84. Sometimes inhalations of various kinds will prove advantageous; but they will have to be used under the care of a physician.

INFLAMMATION OF THE LUNGS.

Inflammation of the parenchyma of the lungs is a disease of frequent occurrence; and involving, as it does, so important a structure, its effect upon the general system is proportionately severe. The extent of the inflammation varies in different cases; sometimes but a portion of one lung is involved; at others, one entire lung; and, lastly, both lungs may be involved in the disease. If the inflammation is confined to one lung, it is termed *single*; if it affects both, *double* pneumonia—the last being a very severe disease.

Pneumonia is, in a large majority of cases, produced by cold; in the exceptional cases, by irritant materials inhaled, or as the result of injury. The action of cold upon the system, and its influence in producing disease, has been already considered, and it is only necessary to notice here that previous exhaustion, and sudden arrest of the cutaneous secretion, are almost invariably noticed.

SYMPTOMS.—Generally the disease is preceded for a day or two by premonitory symptoms, as—oppression of the chest, quickness and shortness of breathing, quick, short cough, dullness and languor, occasional sighing, and more or less chilly sensations and coldness of the extremities. The inflammation is usually ushered in by marked chills or rigors, continuing from one to two or more hours.

There is now an increase of the symptoms before named, general uneasiness, and a dry and suppressed cough. With the disappearance of the chill, febrile reaction comes up, the pulse is frequent and hard, the skin dry and hot, appetite impaired, tongue coated white, bowels constipated, and urine scanty. Respiration is more short, frequent, anxious and difficult, and attended with unusual expansion and elevation of the chest; there is a frequent short cough, and increased warmth and moisture of the expired air. Upon auscultation we find that the respiratory murmur is replaced by the *crepitant* rhoncus, there is no bronchial sound, and no dullness on percussion. During this period the cough has been dry; or, if any expectoration, it is thin, transparent, or frothy.

By the third or fourth day, we find that the patient is unable to take a deep inspiration, respiration being performed principally by the diaphragm and abdominal muscles. He lies, in preference, upon the affected side, or, in double pneumonia, upon the back. There is a constant feeling of uneasiness rather than pain in the chest, with anxiety, sense of constriction, weight and fullness, and of internal heat. In some cases there is constant restlessness, with frequent attempts to elevate the head and shoulders. Now, the *crepitant* rhoncus disappears, and is replaced by a mucous rhoncus; percussion gives increasing dullness over that portion of the lungs involved in the inflammation. This indicates hepatization, which, increasing, gives rise to extreme dullness on percussion, and to a remarkable clearness of the bronchial sound, and to broncophony.

The cough, which has generally increased up to this time, is now attended with expectoration of an opaque mucus, which becomes characteristic about the fifth or sixth day. The sputa is of a yellowish, reddish, or more frequently, rusty tinge, semi-transparent, tenacious and globular; when discharged into a vessel, it runs together, forming a single mass, so tenacious that the vessel may

be inverted without detaching it. The rusty sputa has been considered as pathognomonic of pneumonia.

By this time the dyspnœa is much increased, the inspirations being obviously short and quick. If the disease is extensive, the oppression becomes urgent, and the sense of weight and anxiety are extreme. About the fifth or sixth day, in favorable cases, the disease commences to decline, the inflammation terminating by resolution. The cough becomes looser and less distressing; the expectoration less viscid and rusty-colored, and more abundant, resembling the sputa of bronchitis, the pain and dyspnœa are gradually relieved, the febrile symptoms disappear, and the patient is convalescent at about the seventh to the ninth day of the disease.

Otherwise, the hepatization goes on, the dyspnœa is increased, and so urgent is the call for breath, where a large portion of the lung is involved, that the patient has to have the head and shoulders raised, and call into action the external inspiratory muscles. The inspirations are short, forced and rapid, sometimes from forty to sixty per minute. The cough is persistent and extremely annoying, the viscosity and color of the sputa corresponding to the intensity of the disease. The general symptoms correspond with the local, the pulse is increased in frequency to a hundred and twenty, or even a hundred and forty beats, per minute, and is small and hard, or soft and fluent; the skin is hot, dry and rough; the tongue is heavily coated with a brownish, offensive mucus, which becomes darker as the disease advances, sordes appearing around the teeth. The patient becomes delirious, at first but partially, and for a portion of the day; but finally it becomes continuous, and sinks into a low, muttering delirium, or into coma. The symptoms above named extend over a period of one or two weeks, sometimes coming on rapidly, in others very slowly; the disease terminating fatally in some by the twelfth day, in others

in three or four weeks; or the patient recovers after this, having worn the disease out.

TREATMENT.—Inflammation of the lungs does not generally require very active treatment, mild measures seeming to answer a better purpose. It has been proven by numerous experimenters that a very large proportion of cases would recover with but simple diet and rest, without the use of medicine. As an instance, Dr. Deitl gives the results of 380 cases of inflammation of the lungs, of which 85 were treated by blood-letting, 106 by tartar emetic, and 189 by diet and rest alone. Of those treated by blood-letting, 17, or 20·4 per cent., died; of those treated by tartar emetic, 22, or 20·7 per cent., died; whilst of those treated by diet and rest alone, only 15, or 7·4 per cent., terminated fatally.

These are facts, and not only show that inflammation of the lungs will get well without medicine, but it proves conclusively that the old fashioned practice was wrong, and justly chargeable with a large per centage of the deaths; that instead of being of any service, doctors were chargeable with killing every other man that died *with* the disease. This is a pretty strong statement, but it is a true one, and is fully borne out by many of the best writers on medicine.

The treatment named for bronchitis might be adopted, but I should prefer simple medication. Have the person frequently bathed with the alkaline wash, to prevent undue heat of the skin, and apply a poultice of bran or cornmeal to the chest, changing it twice a day, keeping the patient well covered. Give internally, tincture veratrum one drachm, tincture of aconite twenty drops, water four ounces, a teaspoonful every hour until the fever is subdued, and then in smaller doses. On the third or fourth day add a solution of acetate of potash in the usual doses.

The patient's bowels should be kept regular, but active physic should be avoided. If the cough proves very

severe, give a sufficient dose of opium to give the necessary sleep. Let the patient's food be light and nutritious. Keep the room well ventilated, and everything scrupulously clean.

ASTHMA.

SYMPTOMS.—The symptoms of asthma are so marked that an extended description is unnecessary. In some cases the attack is preceded for a day or more by a loaded tongue, some pain and weight in the head, and a feeling of languor, but in others there are no premonitory symptoms. The disease is sudden in its onset, the patient being aroused at night by a feeling of impending suffocation, or forced to throw open the windows and doors in order to get breath. Usually it comes on gradually, attaining its greatest violence in two, three or four days, and as gradually disappearing. We find a patient suffering from an attack of asthma with the head and shoulders raised and thrown forward, the breathing remarkably difficult, wheezy, laborious and prolonged, and anxiety and evidence of imperfect aeration of the blood, proportioned to the severity of the disease.

Sometimes there is markedly increased secretion, the air-passages seeming to be loaded with mucus, at others the respiration is shrill and whistling. Cough is present in nearly all cases, sometimes very severe and prolonged, giving rise to very great difficulty of breathing, and aggravating the patient's suffering, at others short, and occurring at unfrequent intervals.

The duration of the paroxysms is very variable, sometimes but a few hours, at others days or even weeks. Their recurrence, too, varies greatly even in the same cases; in some the patient is hardly free from the disease from autumn until summer. Rare cases are met with in which the one attack having been arrested, the patient is not predisposed to its recurrence, but in a large majority the disease becomes constitutional, and an attack of asth-

ma is the result of any indiscretion, or sudden change of weather.

TREATMENT.—The treatment of asthma is very properly divided into the *palliative* and *curative*, or treatment for the relief of the paroxysm, and that for the radical removal of the predisposition to asthma. To relieve the paroxysm many means have been made use of. One of the most efficient is the lobelia, which may be given in the form of the tincture, from half to one teaspoonful for a dose, or the emetic powder in infusion, in quantities sufficient to produce nausea. Ipecacuanha in nauseating doses, with small portions of opium, sometimes answers the purpose. Powdered lobelia herb, stramonium or jimson weed, and the mullein, have been recommended in asthma, smoked in a common tobacco pipe, and I have known them to be used with good results. Nitrate of potash or saltpetre is one of the best remedies I have ever employed; dissolve it in boiling water as long as the water will take it up, and then saturate common brown paper with it, let it dry, and during the attack burn it in the patient's room, letting him inhale the smoke.

It is very difficult to remove the predisposition to asthma, and in some cases it is impossible. Various means have been recommended as specifics, but so far they all have failed. The treatment must be conducted on general principles, determining, if possible, the cause, and removing this. It would be useless to name individual remedies for asthma in a work of this kind, as they would be used wrongly twice where they would be used properly once.

CONSUMPTION.

Of all the diseases to which mankind are subject, none makes such ravages as consumption. It spares neither the high nor the low, the rich nor the poor—from all classes of society it gathers its victims. How many hearths have been darkened by this fell destroyer the past

year—how many bright hopes crushed to the earth; and still, how many have the dark shadow thrown over them at present! It is an insidious disease, stealing on the doomed unawares, flattering him with false hopes, soothing him with illusory amendments, until, finally, he is placed beyond the reach of aid. Most other diseases cast their shadows before; their influence is evident, their symptoms sufficient to arouse the sufferer to a sense of his danger before serious change has taken place. This almost always gives little alarm; there is but little suffering; a gradual sinking of vital power, a gradual deposition within the substance of the lungs of a material which will finally destroy them, the mind still remaining bright and clear, as if it had no connection with the gross materials of which our bodies are composed. What is most strange of consumption, is, that though it is all around us, though it has entered our own houses, taken its victims from our own firesides, robbed us of friends and relatives, yet we do not seem to have a wholesome fear of it—a fear that would lead us to inquire into its nature, its causes, or the means by which we may ward off its attacks.

What is consumption? It is the generally received opinion that consumption, or *phthisis pulmonalis*, is a disease affecting the lungs exclusively, having there its primary seat, and only incidentally affecting the general system. Not only is this the generally received *theory*, but the *practice* of many is based upon it. Medicine is given for the influence it produces upon the lungs, and very many times for no other purpose. I will endeavor to show that this opinion is not correct; that consumption or disease of the lungs is a secondary affection, being invariably produced by deficient vitalization of the blood; that it is principally a disease of the blood; and that the removal of this diseased condition is the principal object to be accomplished.

The blood is composed of *red globules, albumen, fibrin,*

salts, and *water*; so long as these elements are properly elaborated and exist in normal proportion, it is impossible for any of them to be deposited in the structure of organs as tubercle. And why? Tubercle is composed of *albumen* and *fibrin* derived from the blood; and an examination of this shows that it has been imperfectly elaborated. We also find, even in the first stages of consumption, and previous to the commencement of the disease, marked symptoms of an imperfect vitalization of the blood. Lastly, we may cause the deposition of tubercles in the lungs and other parts of the body of animals, by placing them in such conditions as prevent the proper formation of this fluid. Rabbits confined in a dark, damp room, and insufficiently fed, or obliged to live on food difficult of digestion, invariably have a deposition of tubercles in some part of the body, the blood being scanty in quantity, watery, pale, and imperfectly formed. Of seven dogs confined for twenty-six days in a cellar imperfectly ventilated and dark, and fed exclusively on vegetable food, five had tubercles deposited in the lungs; in all, the blood was deficient, both in quantity and quality. Numerous experiments, similar to the above, are on record, and the results in all are the same.

We find, upon examining into the previous history of consumptive persons, that there was invariably a depressed condition of the system, arising from impoverishment of the blood, deficient innervation, and imperfect digestive power. This deficiency of vital force may have been hereditary, or it may have been produced by some depressing cause, as previous disease, sedentary habits, living in ill-ventilated houses, improper food, privation, severe mental exertion, the depressing emotions, etc. We used to hear of persons "going into a decline;" and it will be found that this *decline* precedes the deposit of tubercles in the lungs in all cases, though in some it is much better marked than in others. To state the case fairly, then, we believe it is conclusively proven that there must be a

change in the blood before tubercles can be deposited in the lungs; that this change consists in a want of due elaboration of the fibrin and albumen—in fact, a want of due vitalization of this fluid.

In addition to this change in the constitution of the blood, there must be some cause to determine the deposit of this devitalized albumen in the substance of the lungs. This cause is some irritation of these organs, which would determine an increased circulation of blood in them; as, for instance, a protracted cold in the chest, chronic bronchitis, irritation of the nerves, producing chronic cough, etc. Without this irritation, the lungs will not be the seat of the deposit of tubercle. Thus we find that where this depression of the system and want of elaboration of the blood exists, but no irritation of the lungs, tubercles may be deposited in other places; as where there is great irritation of the bowels in childhood, it will be deposited in the mesenteric glands, producing *tubes mesenterica*, or abdominal consumption; or if there is irritation of the liver, the spleen, the brain, etc., the tubercles will be deposited in those organs.

“The following,” says Dr. Copeland, an eminent authority in medicine, “may thus be inferred as the successive or morbid phenomena resulting from the action of the causes of *phthisis*, whether occurring singly, or in various combinations, or in succession: 1st. Depression of the organic, nervous or vital power of the frame, or an imperfect development of this power, owing to hereditary or congenital, or to more immediate or direct causes operating in early or advanced epochs of life. 2d. Morbid states of the circulating fluids, especially of the chyle and blood, commencing with the slow or imperfect development of the chyle globules, and followed by a slow or impaired metamorphosis of these and of the blood globules, or of the former into the latter—the plasma or *liquor sanguinis*, with its fibrin, being deficient in vital endowment. 3d. A wasting or diminution of the red globules,

and an impairment of the vital endowment of the blood by excessive secretion and excretion from the lungs, skin, and bowels."

CAUSES OF CONSUMPTION.—The causes of consumption may be divided into two classes, *predisposing* and *exciting*. By a *predisposing* cause, I mean one that has a tendency to lower the vitality of the body, and prevent that due elaboration of the blood, upon which good health depends. By an *exciting* cause, one that will produce irritation of the lungs, cause determination of blood to them, thus causing deposit of tuberculous matter within their structure. The share which these two classes of causes have in the production of tubercle, varies in different cases. When the person is little exposed to the exciting causes, the constitutional predisposition may be long present without any local affection, while continued exposure to exciting causes may determine the local disease when the morbid state of the constitution exists in a slight degree. We have examples of the former among the wealthy classes of society, where we see the tuberculous cachexia prevail for a considerable time without the actual development of tubercles, because the person is little exposed to the usual exciting causes, and even sedulously avoids them; and we meet with instances of the latter among the poor, when engaged in occupations in the exercise of which the lungs are peculiarly exposed to irritation, by which a diseased state of the bronchial mucus membrane, and ultimately tuberculous disease, are produced. The most striking examples of consumption which have been adduced, as the consequence of pulmonary irritation, occur in persons who are at the same time exposed to some of the most powerful causes of tubercular cachexia, such as sedentary occupations carried on in a confined and deteriorated atmosphere, and very often also to excessive indulgence in the use of ardent spirits; so that they are exposed to the causes of the constitutional and local disease at the same time.

HEREDITARY PREDISPOSITION TO CONSUMPTION.—That children inherit a predisposition to consumption from their parents, is a well-established fact. Thus, we rarely see a family where the father or mother has died of this disease, but what the children exhibit evidences of the tuberculous constitution. We also find that where, from chronic disease, or from excess of any kind, the health of either of the parents has suffered greatly, the children will, in many cases, be deficient in vitality, and predisposed to consumption. Dr. Powell, in writing on this subject, says: "The amount of disease and premature death that is entailed upon society by the marriage of unhealthy persons, is such as to demand, on the part of society, the enactment of some protective ordinance. If the consequences were confined to the parties themselves, or even to their children, the evil would be comparatively small; but the multiplication of it is so rapid, that, in a few generations, a very large extent of country becomes similarly afflicted. Because a man or woman has acquired a predisposition to consumption, or some other form of disease, it does not follow that the privilege should exist to entail it upon others.

"There is scarcely an individual in society who has not witnessed the deplorable consequences of the marriage of those who have had entailed upon them a predisposition to consumption, to insanity, to apoplexy, etc.; then what should we think of those, who, knowing themselves, by what they know of their ancestors, to exist with such predispositions, place themselves in such a situation as to visit the mischief upon unborn hundreds, perhaps thousands?"

It is easy to account for this hereditary predisposition to disease. We find, as a never-varying law of nature, that where deterioration of the parent, whether animal or vegetable, has taken place, the succeeding generation will show marked evidence of this. Thus, the farmer would not expect good sound crops from seed that was

unsound, or the product of unhealthy plants; he would not select grafts for his orchard from trees affected with the rot, or where there had been marked deterioration in the quality of the fruit; neither would he expect to raise fine stock from parents that were unsound. There is little use to argue a question like this, as the evidence of the truth of the proposition is so abundant, that one has but to open his eyes to see it.

PREDISPOSING CAUSES ACTING DURING EARLY LIFE.—Of these causes there are many, but we will here consider those that are most apparent. Many parents appear to pursue, from choice, the very course best adapted to produce the tuberculous constitution. Thus, some are constantly over-feeding their children, or, what is worse, pampering their appetites with sweets, cakes, candies, pies, tarts, etc., the best possible means in the world to destroy the tone of the digestive apparatus, to produce an elaboration of *poor* blood, and consequent *mal-nutrition*. How can we expect strong, robust men and women under such circumstances? Others, again, constantly fearful that their children will take *cold*, or get *sick*, keep them almost constantly in the house, deprived of fresh air, exercise, and very frequently of light. We might just as well expect to raise our garden vegetables in the cellar, as expect to raise children in this way. Did you ever notice a plant kept from light and air—how pale, slender, and puny it appeared, having hardly strength enough to support its own weight? So with children raised in the house, they are pale or sallow, debilitated, no strength, and unable to resist the slightest exposure. A third class, the votaries of fashion, when they do take their children out, have their feet cased in paper shoes, their knees bare, and the chest and arms poorly protected, or not protected at all against the cold; the result is croup, bronchitis, inflammation, and other disorders of the lungs, which frequently prove the seeds of consumption in the future.

At the age of six or eight years, sometimes sooner, other causes are brought to bear against the child—it must be schooled, and frequently this schooling is but the advancement of the mind at the expense of the body. The child's mind is forced; it is conning lessons when it should be at play; it is increasing the activity and size of the brain, at the sacrifice of future health and strength. Not only so, but it is too much confined to school-rooms, with heated, impure air, absence of sunshine, and want of exercise. Defend us, good Lord, from the *precocity* of this untoward generation!

At the age of puberty, say from the twelfth to sixteenth year, we find as a general rule that the emotions are cultivated at the expense of the body. Boys and girls are reading *novels*, not representative of actual life, but filled with characters whose sole aim in life appears to be centered in *love*—not the affection, mind you, that is based upon the understanding, and which forms the happiness of married life, but the animal or sexual instinct. If we were to sum up all the predisposing causes of this disease, we believe that not one of them could compare with this. In this school of masked vice, the sexual passions attain an unnatural preponderance, and attain it, too, at the expense of *life*. Reader, if you are a father or mother, banish this trashy stuff misnamed literature from your houses, fear it as you would the Evil One, for its reading not only involves a waste of time, but gives a misconception of life, and in the young risks the wreck not only of virtue, but also of health.

Children and young persons subjected to the causes above mentioned, become delicate and sickly. The vital endowment and the structural development of the several organs and textures, are impaired or arrested in their progress. Like plants growing excluded from the sun and wind, their vessels often extend rapidly in the direction of their axis; but the walls of the vessels and their lateral branches are thinly or weakly formed, are sur-

rounded by lax cellular tissue, and both the organic nerves and the animal fibers are imperfectly constituted. The formative processes seem arrested before they are completed. The circulating fluids present a superabundance of the serous and albuminous constituents, and a deficiency of fibrin and red globules. While the blood is defective in its constitution, the blood-vessels are impaired in their tone, and the venous and lymphatic systems are more manifestly or prominently developed.

The *predisposing* causes of consumption in adult life are many, as society is organized, and yet there are but few which cannot be avoided.

Sedentary employment might be named as one of these, especially if carried on in a confined workshop. In such cases there is want of air, light and exercise, the three most important influences in preserving health, and we should reasonably expect that with deficiency of these there would be deterioration of all the functions of the body, and the elaboration of poor blood. Its injurious effects may be counteracted by free ventilation, good exposure of the workshop to light, and plenty of exercise after working hours. In these cases a gymnasium is worth the services of a hundred doctors.

The *fashionable follies* of the day have to answer for the loss of thousands of lives by consumption. Thus we daily see women who, the larger part of the time, confine themselves in close, heated rooms, appear upon the streets with but little if any clothing to protect the upper part of the chest and arms from cold. We see them frequenting the ball-room and other places of amusement, clad in the same manner, exposing the over-heated body on their return home to the chill night air. Can we with justice say that in these cases consumption is an inscrutable dispensation of Providence?

Overworking the brain is a fertile cause of consumption in this fast country. Our business men are constantly grasping after wealth, and in addition to an overworked

mind, we find them neglecting the most common means of preserving the health. They succeed in their object, but in the race they become prematurely old, and may succumb to this dread disease before they reach the prime of life.

Want of exercise is the most common of the predisposing causes of consumption. Moderate and sustained exercise in healthy air, as in walking, riding on horseback, and in various occupations and pastimes, excites into activity most of the functions of the body, especially the circulation and respiration, or those intimately connected with these, the secretions and animal heat, and provided the fatigue or exhaustion resulting from this excitement be adequately removed by sufficient rest and sustenance, the functions gradually gain vigor by their activity, and the structures exercised acquire a fuller and healthier development. The muscles, especially, including the heart, manifest an increase of strength and firmness; the blood-vessels are improved in tone, by which they distribute and equalize the flow of blood through them, and prevent partial congestions and obstructions; and the blood, actively carried through the organs and textures, undergoes the complete series of changes from nutrition, purification, arterialization, by which its integrity is maintained, and it is adapted in its turn to sustain the several functions of the body. The appetite, the digestive powers, the intestinal action, the warmth of the surface and extremities, the spirits and temper, are generally all improved by the habit of regular exercise. *Want of exercise* induces torpor of all the functions of the body, deranges the secretions, impairs digestion, and predisposes to impoverishment and deficient elaboration of the blood, which we have seen to be one of the main causes of tuberculosis.

Of the *direct causes* of consumption in adult life, we might name but the single one, a *neglected cold*, which still further reduces the vitality of the blood, and by the irri-

tation kept up in the lungs causes debility of their structure, constant determination of blood, and finally deposit of tubercular material in them.

PREVENTION OF CONSUMPTION—*Marriage*.—I have stated, in the preceding pages, that the health of the child depends, in a great degree, upon the constitution of the parents, and that when one or both parents were in feeble health, lacking in vital power, their children could not be healthy. No fact in medicine is better proven than this. Were parents convinced that the health of their children depended upon their own, a beneficial effect might be produced among the more reflecting part of mankind, and especially among families of a scrofulous habit. If more consideration were bestowed upon matrimonial alliances, and a more healthy and natural mode of living were adopted, the predisposition, which is so often entailed upon their offspring, might be checked, and even extinguished in their family in two or three generations. In the present state of society, the reverse of this very commonly happens; and from the total disregard of the precautions alluded to, the third generation often terminates the race.

The children of dyspeptic persons generally become the subjects of dyspepsia, in a greater degree, and at an earlier period, than their parents; and if they marry into families of a delicate constitution, their offspring become highly tuberculous, and die of consumption in early youth, or even in childhood.

This extinction of families may be prevented by judicious intermarriages with healthy persons. Families already predisposed to tuberculous disease, should at least endeavor to avoid matrimonial alliance with others in the same condition; but above all, they should avoid the too common practice of intermarrying among their own immediate relations—a practice which is at once a fertile source of scrofula, a sure mode of deteriorating the intellectual and physical powers, and eventually the means of

extinguishing the degenerated race. We are well aware that the mass of mankind do not regard the propagation of the species as one of the great ends of marriage; there are some, however, upon whom these facts will not be thrown away. It must not be forgotten that this is not merely a question which has reference to private feelings and social happiness, but one of great public importance, involving at once the well being of society, and the moral as well as physical character of the nation.

PHYSICAL EDUCATION OF CHILDREN.—Where there is any predisposition in a family to consumption, great care should be used to place the children in the most favorable circumstances as regards nourishment, air, exercise, etc. As a general rule, the mother's milk is the best nourishment for the infant; in cases where the children are of a scrofulous or consumptive habit, if this disposition is derived entirely from the father, and the mother's health is good, she should nurse her child. But if the mother is in feeble health, or of a scrofulous or consumptive constitution, it is much better that the child should derive its first nourishment from the breast of a stranger, or even in some cases "raised by hand." When the child commences to eat, its food should be nutritious and easily digested, carefully avoiding sweetmeats and pastry.

The dress of all infants should be carefully suited to the season. The whole surface, particularly the extremities, should be well protected during cold weather. The notion that children may be hardened by exposing them to the air in a half-covered state, is false in the case of all children, and leads to pernicious consequences in those of a delicate constitution.

Much has been said and written in favor of cold bathing, and writers who have laid down rules on this subject, have adduced in support of the practice the customs of savage nations, altogether overlooking the difference in the condition of children in civilized life. The object of washing and bathing children is two fold: the first and

most important being that of cleanliness, especially in the tuberculous infant, in whom it is essential that the cutaneous functions should be maintained in a state of healthy activity. At first the infant should be washed with warm water; and a bath every night, with the view of thoroughly cleansing, will be beneficial. The second object in bathing being to brace and strengthen the child, it may, as its age increases, be sponged in cold water, or even plunged into it every morning during the summer with advantage. The judicious adoption of this plan, along with subsequent friction of the body, with flannel or the hand, is, we believe, one of the most effectual means of strengthening children, but its effects must be carefully watched, as all children will not be equally benefited by cold bathing, and the health of some may even be injured by it.

Tuberculous children should be accustomed to the open air from an early age; as with plants, the human species can not be robust and stout without fresh air and sunshine. As soon as they commence walking, they should play in the open air whenever the weather is suitable. In this way the constitution is strengthened, and the liability to colds by alternations of temperature much reduced. Sleeping rooms should in all cases be large, well ventilated, and exposed to the direct rays of the sun during some portion of the day. The occupation of dark, ill-ventilated rooms, with their necessarily impure atmosphere, would produce consumption in many cases where there was but little predisposition to it.

Up to the age of eight or ten years, the child's occupation should be out doors; and whether it was play or work, it should be of such a character as to bring into action all the muscles of the body. Before this age, the child should not be required to study, neither should it be sent to school, there being sufficient time after this, for all laudable educational purposes. Regular meals of good, hearty food, with fruits in their season, with a sedulous

avoidance of all sweetmeats, cakes, etc., are of the highest importance. If these almost self-evident rules for strengthening the constitution during childhood were adopted and carried out, I believe that one-half of those dying of consumption, might live to a good old age.

SYMPTOMS OF CONSUMPTION.—Consumption usually comes on slowly and insidiously, and considerable time elapses before either the sufferer or his friends can believe that he has the disease. Previous to its commencement there is more or less failure of the general health, though the person complains but little, and attends to his business as usual. A bad cold is then contracted which affects the chest, giving rise to a cough. This, though not bad, is very persistent, and week by week it may be noticed that there is slight failure of the general health, marked by loss of strength and flesh, pallid skin, and enfeebled circulation. This may be called the first stage of the disease.

The second stage presents marked evidence of serious disease, but even yet the sufferer cannot believe that he has consumption. The cough is persistent and harassing, there is pain in the chest, slight difficulty of respiration, and frequently hemorrhage of the lungs. The patient is very feeble, has a poor appetite, soon becomes tired, has slight fever in the evenings, and commencing night sweats.

In the third and last stage, we find the lungs breaking down and being thrown up with the tubercular deposit. The cough is very severe and harassing, hectic fever is marked, and the night sweats exhausting. The patient expectorates large quantities of a muco-purulent material, and if hemorrhage occurs it is severe. They are now very thin in flesh, and their strength is so exhausted that but little exercise can be taken. In addition to the night sweats, there is not unfrequently a colliquative diarrhœa, which greatly increases the debility. Continuing thus for a considerable period of time, gradually losing strength,

they die without any considerable increase of symptoms.

TREATMENT.—As heretofore remarked, the treatment of consumption should be preventive, and the necessary hygienic measures should be adopted in early life. There is no doubt but that the predisposition to consumption can be removed, but when such predisposition exists, the disease when fully developed can *never* be cured, and it is folly to attempt it. In the first stage many cases can be cured, in the second stage a few will recover, but in the third not one. No one need expect a cure, however, unless he firmly determines that he will use every available means to live.

The cure of consumption does not depend upon medicine, though this is sometimes very important, but it depends upon an aggregation of all the influences that will improve digestion, assimilation, the quantity and quality of the blood, and the nutrition of textures. The medicines applicable in this case are those that lessen irritation of the lungs and quiet cough, and those that improve digestion and the quantity and quality of the blood. Cough medicines do not cure consumption, but they will lessen irritation, and thus prevent increased deposition of tubercle. These remedies should always be prescribed and taken under the direction of a physician, as even a medical man would not take the responsibility of treating himself in such cases.

There is much, however, that the patient can do himself. His habits must all be regular, with avoidance of all depressing influences, a cheerful mind and fixed determination to get well if possible being very important. The clothing should be warm, and such as will protect the body from injury by sudden changes of temperature, and against changes of weather while taking exercise. Flannel should be worn next the skin, and in fall or winter the chest should be additionally protected by some light fur worn next the under-clothing, as rabbit, squirrel or cat

skin. The boots or shoes should be heavy, have cork in-soles, and be water-proof, and a rubber poncho used when taking exercise out-doors in damp weather.

All this is preparatory to the most important part of the treatment. The person who recovers from consumption must, as a general rule, live in the open air. Moderate exercise in the open air is absolutely indispensable to life in these cases, and should be taken at all seasons of the year, and at all times unless when raining. I do not speak from the book, but from large experience, and can most positively assure any one suffering from this disease, that this is the only chance of safety. Though placing such reliance upon out-door exercise, I wish it understood that it is to be proportioned to the strength of the patient, and must not be carried to exhaustion.

Normal action of the skin is of great importance, as the sympathy between it and the lungs is very intimate, the skin being in fact, to some extent, a respiratory apparatus. We employ baths of various kinds, cold, tepid and warm water, stimulant baths, tonic baths, oleaginous frictions, etc., which will be adapted to the case by the physician in charge.

As regards the diet, it should be nutritious and easily digested, and taken in moderate quantities. All innutritious articles should be rejected, or used in very small quantities, simply as appetizers. Fatty matters have been found very important, as furnishing material for combustion, and saving the protein elements which require so much vitality for their elaboration. Thus, cod-liver oil, cream, beef-suet, etc., have gained great reputation as curative remedies in consumption. The blood is the life of the body, and the deposit of tubercles in the lungs depends upon imperfect organization of this fluid. Hence the great importance of obtaining a normal quantity and quality of this fluid by strict attention to diet and regimen.

The proofs that consumptive persons do recover are positive, and should be sufficient incentives to every per-

son to make the necessary effort. Hundreds of cases are recorded, of examinations of the bodies of those dying of other diseases, but who have had symptoms of consumption in previous years, and in which there was perfect recovery. In some cases chalky material was deposited in the tubercles, in others they were partially absorbed and organized, and in others still the cicatrices in the lungs have shown where the tubercles have been removed by expectoration and the ulcers healed up. It may be that you are so predisposed to the disease that there is no chance of recovery, but still if you are able to pursue the course designated above, your life is worth the effort.

HEMORRHAGE FROM THE LUNGS.

Hemorrhage from the lungs is a very rare disease, except as the result of tubercular deposit; and though frequently made light of, I know of no symptom so certain. It is not, as popularly supposed, caused by the rupture of a blood-vessel, or, as some in the profession think, by their erosion during the breaking down of tubercle; for blood-vessels are not easily ruptured, and they yield to the ulcerative process so slowly, that obliteration of their cavity takes place some time previously. Hemorrhage is, in a large majority of cases, an exudation from the blood-vessels, and its probable cause is compression of the veins by the tuberculous deposit, thus preventing the free return of blood to the heart. We have a similar instance in hemoptysis from disease of the heart, the free passage of blood from the lungs through the left auricle and ventricle being obstructed.

SYMPTOMS.—Evidences of debility, and frequently of disease of the lungs precede hemoptysis. There may be no seeming cause for it in some cases, coming on when the patient is sitting or lying still, or sometimes when asleep; but usually it is after exertion, or a fit of coughing. Varying in quantity, we find it sometimes raised by an act of

coughing; at others it seems to flow to the upper part of the larynx, and into the pharynx, and is simply spit out. The blood is florid and somewhat frothy, differing materially from that in hemorrhage from the posterior nares and stomach. A small quantity of blood mixed with the secretions from the mouth and throat makes a very large show, especially when spit on cloths, or into a vessel of water, so that frequently there is not the cause for alarm that there might seem at first sight.

Sometimes the hemorrhage is preceded with chilly sensations, and a feeling of faintness, with occasionally a sense of oppression in the chest, and some dyspnœa. With its commencement the patient usually becomes much alarmed, which is increased by the excitement of those about, and this is usually the cause of the excessive prostration noticed. In but few cases is the hemorrhage in such quantity as to destroy the patient. Dr. Heberden states that, in sixty years practice, he had never lost a patient of it, and others testify to the same. The quantity of blood lost varies from a few drops to as much as ten pounds, the average quantity, possibly, being from one to ten ounces. When very free, it occasions much dyspnœa, and requires continuous efforts to free the upper air passages from it.

TREATMENT.—The patient should be immediately placed in the recumbent position, with the head elevated, and all physical and mental excitement avoided. But few persons should be in the room, which should be well ventilated and cool. If the feet are cold, a hot mustard foot-bath is very useful, and the warmth subsequently continued with a jug of hot water.

If no other remedy is at hand, a half-teaspoonful of common salt may be given every half hour; and if palatable, a small portion of grated nutmeg added to each dose.

Gallic acid, in from two to five-grain doses, is one of the best remedies in this case, and may be given as

often as it seems necessary. The *lycopus virginicus* has proven very successful, and may be depended on. It is administered in infusion, one ounce to six ounces of boiling water; half an ounce of the infusion every half hour. *Ipecacuanha* has been highly recommended, and I am satisfied it exerts a marked influence; it may be given in doses of from three to five grains every fifteen or thirty minutes, until nausea is induced.

Sulphate of magnesia in half-drachm doses, with diluted sulphuric acid, has been used with advantage, as has also alum, in doses of from two to five grains, with gum tragacanth, every half hour. If hemorrhage is feared, oil of turpentine may be used in doses of from twenty to sixty minims, every three or four hours. The oil of erigeron, in doses of ten or fifteen drops, is relied on by many, and I have no doubt will answer the purpose in many cases.

PLEURISY.

The serous membrane, enveloping the lungs, is not unfrequently the seat of inflammation, which, when occurring without disease of the lungs, is called pleurisy. A milder form sometimes occurs with pneumonia.

SYMPTOMS.—Sometimes pleurisy is preceded for a short time by languor, headache, loss of appetite, and derangement of the secretions; but usually there are no evidences of disease until the commencement of the chill or pain. A marked chill usually ushers in the disease; sometimes it is preceded by pain, at others it is not; fever follows, and is generally high. The pain is sharp and lancinating, increased when the thorax is moved, much easier when kept perfectly quiet. In consequence of this pain, we find the respiration short and hurried, and principally abdominal, as anything like a full inspiration produces excruciating suffering. A dry, hacking cough attends the disease, and is a source of great annoyance to the pa-

tient. Pleurisy is characterized by a hard, small, frequent pulse, running sometimes from a hundred and twenty to a hundred and forty beats per minute; the skin is dry and harsh, the urine scanty, tongue coated white, and bowels constipated.

These symptoms continue without change for from one to three days, unless arrested by treatment, when effusion taking place, the pain is lessened; but the difficulty of breathing and other symptoms are increased. The fever now is markedly lessened, the pulse is still frequent, but has lost its hardness; the trunk is hot, but there is tendency to coolness of the extremities, the secretions are yet checked, there is still cough, and sometimes expectoration, the patient feeling very much prostrated, especially after a paroxysm of coughing. The difficulty of breathing is sometimes so great that the patient can not lie down; in such cases there is abundant effusion.

The disease may terminate fatally in the first or second stage. If in the first, the fever is very high, and the pain excruciating; the pulse is wiry and quick; respiration rapid, sometimes fifty per minute; delirium ensues, and the patient succumbs, usually within forty-eight hours. After effusion we find the patient losing strength, day by day—a low form of remittent fever is present, respiration is difficult, the patient has no appetite, and is generally worn out by the disease.

TREATMENT.—The objects of treatment are to lessen the rapidity and equalize the circulation, and, by different means of derivation, check the flow of blood to the pleura. We can accomplish this in different ways—thus, one will have an infusion of the compound powder of lobelia made, and give it freely until nausea is induced; and after this has relaxed the system and mitigated the pain, give it to produce thorough emesis. It would seem, at first sight, as if the patient could not bear the severe movement of the chest necessary in vomiting, when the hacking cough produces so much disturbance; but we

find the nausea to so check the pain that the vomiting does not occasion additional suffering. Others, again, would arrive at the same result by inducing profuse diaphoresis with the spirit-vapor bath, and the free administration of an active diaphoretic, as the compound tincture of Virginia snake-root.

It will be noticed that these means are powerfully relaxant, indirectly sedative, and thoroughly revulsive, and will sometimes check the disease at once. I have seen it treated by podophyllin, in doses of from half to one grain every three hours, until emeto-catharsis was induced; and am satisfied, in my own person, that it is very effective, though extremely unpleasant.

A much more pleasant treatment is to give the patient tincture of veratrum, in doses of from three to five drops every hour until partial sedation is induced, and then add the tincture of asclepias in half-drachm doses. It is well to get an action on the bowels with the podophyllin pill, heretofore named, and in some cases add sufficient opium to mitigate the distress. Cups to the affected part, followed by hot fomentations, or a warm poultice of wheat-bran, assist very materially. A sinapism, followed by hot hop or stramonium fomentations, may be used instead; or the cold water bandage, recommended by some, may occasionally be found useful.

WHOOPIING-COUGH.

Whooping-cough is a contagious disease, like measles and scarlet fever, being propagated from one to another by inhaling the breath, or emanations from the body of a person suffering from the disease. Sometimes, however, the poison seems to contaminate the atmosphere so that persons take it when at considerable distance from those who have it.

SYMPTOMS.—Whooping-cough manifests itself at first as a simple catarrh, the cough being gradually developed.

Some days elapse before there is any thing distinctive in it; and it is not usually well marked under from two to four weeks. The cough differs from others in that it seems to arise from an obstruction to respiration, and forcible inspiration is taken, and then there is a series of short expulsions until the air is all expelled; the tendency to cough still continuing, produces great distress, and more or less evidences of impaired respiration are noticed. The *whoop* is developed when the cough becomes intense, and is the shrill sound formed as the air is drawn through the yet contracted larynx in the forcible inspiration succeeding the cough. The cough is paroxysmal, the paroxysms recurring at longer or shorter intervals, in proportion to the severity of the disease.

There is a secretion of glairy mucus in most cases, which is raised at the latter part of the cough, and frequently seems to increase the suffering. If the disease is very severe, and sometimes when mild, there is a free yellowish expectoration. There is, necessarily, some fever at the commencement of the disease, and it may occur during its progress.

Writers divide pertussis into three stages—the first, lasting from five to fifteen days, presents the symptoms of ordinary catarrh; the second, lasting from three to six weeks, presents the peculiar whoop, which gives name to the cough; and the third, of variable duration, is the period of decline.

It is during the second stage of the disease that the symptoms become so aggravated as to demand relief. We sometimes see the paroxysms of cough so severe that the little patient will turn purple in the face, gasp for breath, and even for some time afterward exhibit marked evidences of imperfect respiration. Occasionally bronchitis sets in and is very troublesome; sometimes there is marked congestion of the lungs; at others, the frequent and severe paroxysms of coughing prevent necessary rest, derange the functions of the body, and wear the patient

out. In some cases there is tendency in the disease to recur, for months after it has ceased, on exposure to cold, though almost always in a mild form. Instead of impairing the strength of the lungs in feeble children, it seems rather to have increased it, and may sometimes be regarded as of marked advantage to the child.

TREATMENT.—In a majority of cases of whooping-cough, but little treatment is necessary, as the disease has a regular course to run. Where treatment becomes necessary from the severity of the cough, any nauseant expectorant may be employed with advantage. The compound syrup of lobelia will prove an excellent remedy, as will the tincture of oil of lobelia and stillingia. Belladonna is a favorite agent with many. I order it in the following manner: Take tincture of belladonna, one drachm; alum, one drachm; simple syrup, six ounces; and give in teaspoonful doses every three or four hours. Nitric acid is also employed in this disease; add two drachms to six ounces of simple syrup, and give a teaspoonful every three hours. Another excellent remedy in some cases, is a strong infusion of red clover hay, sweetened, and give one or two teaspoonfuls every two hours. Tincture of drosera, two drachms, to water four ounces, a teaspoonful four times a day, has proven a specific in other cases.

DISEASES OF THE HEART.

The heart, like all other structures of the body, is liable to disease; in fact, we may say it is liable to all diseases that affect other parts. Thus, it may be the seat of inflammation, acute or chronic, of rheumatism, of change of structure, and of functional disease.

Inflammation and rheumatism of the heart are so similar in their symptoms that it is almost impossible to distinguish one from another. The symptoms are usually very severe, the oppression and pain in the region of the heart being very great, a very rapid pulse, and dif-

ficult respiration. If, during the progress of rheumatism, such symptoms should set in, send immediately for your physician, for it requires prompt and energetic treatment.

The treatment named for rheumatism may be adopted until advice can be had, using the hot-blanket pack, and mustard over the part affected. If you are near a cupper, send immediately and have from four to eight *dry* cups applied over the region of the heart. It is the most powerful and certain means that can be adopted in most cases.

Chronic structural disease of the heart can only be determined by a physician skilled in auscultation, its symptoms resembling very closely those of functional disease. But very little can be done for it, except to moderate the more urgent symptoms, yet the patient may live for many years, or he may die suddenly at any moment. It is true that in some cases of this kind, if the disease is recognized early, the trouble can be entirely removed by a judicious and long continued course of medicine and hygiene.

Functional diseases of the heart are of far more frequent occurrence than structural disease, and, as before remarked, the symptoms in the one case will closely resemble those in the other. It may be dependent upon many causes, though in all cases the nerves distributed to the heart are especially implicated. Thus I have seen a number of cases of what seemed to be serious heart disease, dependent upon irritation of the stomach, and consequently of the pneumogastric nerves; others were dependent upon derangement of the kidneys; others upon disease of the spinal cord and brain; whilst in some the disease was confined exclusively to the nerves of the heart.

If, now, it was dependent upon disease of the stomach, a removal of such disease would pave the way for a cure, so of the bowels, kidneys and other parts. Then we have remedies that relieve irritation of these nerves, and they prove important curative means. Others strengthen the entire body, and especially the heart, and we use these

when the trouble is wholly or partly dependent upon debility of the organ.

If you have palpitation of the heart, irregular action, a sensation of weakness and smothering in that region, difficult respiration and sensation of sinking, do not become alarmed and think you are going to die, or that you have an incurable disease, but consult a physician capable of determining the nature of the difficulty. In two out of every three cases the disease is remediable, when a proper course of treatment should be adopted. In the other case a man knows what he has to depend upon, and can make preparation to die, though he may live for years.

DISEASES OF THE DIGESTIVE ORGANS.

The digestive organs, as will be recollected, consist of the mouth, throat, stomach, small and large intestines, with the associate glands, the liver, the spleen, and the pancreas. The function of these organs is, to prepare the food for the use of the body, by minutely comminuting it and fitting it for absorption into the blood. Diseases of the digestive organs affect this function, besides giving rise to other disturbance of the economy by sympathy, by deranging the circulation of the blood and nervous force, and by exhausting discharges.

DERANGEMENTS OF DENTITION.

Dentition or teething is a physiological process, and not a disease, as many imagine. If the body is in a normal condition, and not warped to too great an extent by customs called civilized, then the process of cutting the deciduous teeth is painless and without unpleasant consequences. But if the converse, then the eruption of the teeth may be the source of irritation which will cause disease of various parts. We can readily see how this may be if we examine other parts: for instance, the func-

tion of sight is performed with pleasure and advantage to the eye, if in a healthy condition; but if diseased, it is sometimes the source of great irritation.

Occasionally we find that the gums become very tender, or the child is continually working with its mouth, and desiring to bite something; it is irritable and fretful; there is some fever, increased heat of head, or sometimes pallor, and dilatation of the pupils. It is true, that many times these symptoms will pass off without danger to the child; but often they do not, giving rise to a low form of fever, disease of the brain and convulsions, or derangement of the bowels.

The *treatment* of this condition is comprised in a mild sedative as tincture of aconite, ten drops, to water four ounces, in doses of a teaspoonful every hour or two; and if the child is nervous, and exhibits evidences of convulsion, the addition of tincture of gelseminum one to two drachms, for a child one year old. If the bowels are constipated, a dose of castor oil, or compound powder of jalap and senna in infusion is indicated, and the general bath and hot foot bath should not be neglected. If there is diarrhœa, it should not be suddenly checked, but the neutralizing cordial, or compound powder of rhubarb in infusion, administered until it produces one operation, and afterward in smaller doses; or the infusion of epilobium may be used.

TOOTHACHE.

The teeth fulfill a very important place in digestion, grinding and comminuting the food, and thus fitting it for the action of the gastric and other fluids. If for no other reason than this, they should be well taken care of. But when they become diseased, they become the nucleus for unpleasant secretions, and their diseased action is extended to other parts of the system. Thus, I have had several cases in which the removal of decayed teeth and cleansing the mouth, was the principal means of curing long-continued and serious disease. If your teeth

are decaying, consult a competent dentist, and have them filled, removing all those that are of no further use for mastication.

Toothache is one of the most painful affections to which our bodies are subject, and as common as it is painful. It most generally arises from decayed teeth, though sometimes it is a deep-seated inflammation of the roots of a tooth. If the tooth is decayed, the pain may be frequently arrested by the use of oil of cloves, or other stimulant, applied on cotton. Tincture of aconite is another excellent remedy, as is also equal parts of alum and salt, or the chloroform liniment, No. 88. The last may also be applied to the face over the tooth, if there is tendency to neuralgia.

SORE MOUTH.

There are many forms of inflammation of the mouth—from the simple form in which there is but slight redness and burning, to that in which extensive ulceration occurs, and destroys its structures, and sometimes the life of the sufferer.

In simple sore mouth it will be found red and inflamed, and the patient will complain of pain and scalding; very frequently some derangement of the stomach will be found associated with it. We usually give an infusion of compound powder of rhubarb to correct acidity and irritation of the stomach, and use a wash of an infusion of sage privet, or yellow-root, sweetened, adding a small portion of borax in the severer cases.

In ulcerated sore mouth the suffering is much greater, and frequently the appetite is impaired, and the breath and secretions from the mouth are fœtid. In this case I would recommend a strong decoction of the wild indigo for a mouth wash, and that it be given internally in doses of a teaspoonful every hour or two, to a child four years old.

NURSES' SORE MOUTH.

Some years ago a sore mouth prevailed extensively among nursing females; of late it has become rare in this section, though in some parts of the country it is still prevalent. It usually commenced some days after confinement, but occasionally made its appearance in a mild form during the last period of gestation. It was frequently preceded by heart-burn, or pyrosis, sometimes during the entire progress of gestation. The first indications of it were a feeling of heat in the mouth, with slight tenderness, and increased secretion of saliva, which seemed to irritate the inflamed surface.

On examination the mouth would be found reddened, the mucous membrane tumefied, and where the disease had become severe, small vesicles terminating in ulceration would make their appearance; commencing on the lips or tongue, it would gradually pass back until it involved the entire mucous membrane, and in some cases extend to the pharynx, the œsophagus, and finally pass through the entire intestinal canal.

In these cases, as the disease advanced, it would produce marked irritation of the parts invaded, of the stomach and of the bowels, occasioning great prostration from arrest of digestion. It would sometimes last during the entire period of nursing, and only cease when the child was weaned.

TREATMENT.—To relieve irritation and arrest acidity of the stomach, I employed the compound powder of rhubarb in small doses, and gave the chlorate of potash, in doses of a teaspoonful of the saturated solution, every three or four hours. The iodide of potash, in doses of five grains every four hours, answered a good purpose in some cases, but in others it failed. Occasionally an infusion of equal parts of alnus, rumex and quercus rubra, administered internally, and also used as a wash,

would cure the disease when other means failed. As a local application, the chlorate of potash was used with marked advantage; but in some cases its influence was not permanent; all the milder mouth washes heretofore named were employed with but temporary relief. Some practitioners used a solution of nitrate of silver, from twenty to forty grains to an ounce of water, and spoke highly of it. After trying various means, I finally discarded all mouth washes, using the general treatment above named, and recommending the smoking of tobacco three or four times a day. This, though an unpleasant treatment, was uniformly successful, the disease in some cases being radically cured, but in others requiring a resort to the remedy every few days or weeks.

DYSPEPSIA.

Under this head we may group the entire class of functional disorders of the stomach, which are primary in their origin, and not dependent upon structural change.

Difficult or imperfect digestion, is one of the most frequent ailments we meet with in practice, and requires great discrimination for its successful treatment. This will be more apparent if we notice those conditions that are necessary to healthy digestion. They are: 1st, A proper quantity and quality of ingesta; 2d, Thorough mastication and insalivation; 3d, Normal action of the muscular coat of the stomach, giving the food proper motion; 4th, A proper quantity and quality of the gastric juice, and of the pancreatic and biliary fluids; 5th, Normal innervation, and healthy condition of the blood; and, 6th, A reciprocal action of the intestinal canal. Dyspepsia may be the result of a failure of any of these conditions, or a partial failure of two or more of them, so that very different causes may give rise to a similar result.

• Habershon classifies the causes of dyspepsia, as: "1st, From abnormal condition of the mucous membrane and

its secretion; 2d, From the muscular movements being impeded; 3d, From the state of the vascular supply; 4th, From the condition of the nervous system; and lastly, From the character and changes that take place in the food. Several of these causes of dyspepsia may be combined; some lead to disease of a very transient form, others are irremediable."

The mucous membrane may be affected in various ways. Thus, we may have atrophy, especially of the follicles, the change at last becoming so great that digestion can not be accomplished, and the patient necessarily dying of marasmus.

Again, we find other cases in which there is undue activity of the mucous glands, and of course deficient action of the gastric follicles; hence we have two conditions, either of which, if considerable, would materially interfere with digestion. This condition is frequently observed associated with chronic disease, as in anæmia, chlorosis, chronic bronchitis, and other chronic affections of the mucous membranes. As an independent affection, the symptoms are a feeling of weight and tension in the epigastric region; a bad taste in the mouth; fœtid breath; occasional nausea; sometimes vomiting, when considerable quantities of vitiated mucus may be raised; a heavily loaded tongue, especially at the base, and in the early part of the day; sometimes there is a disgust for food, and for several hours after it is taken, there are unpleasant eructations; at others the appetite is craving, but the patient feels uncomfortable after eating. The bowels are usually constipated, but there are occasional attacks of diarrhœa, in consequence of imperfect digestion of the food.

The reverse of this condition may exist. There is scanty mucous secretion, with normal or slight excess of gastric juice, the result being a continued irritation of the stomach, from want of its natural protection. In these cases we have heartburn, both after eating and when the

stomach is empty. There is a feeling of soreness and rawness when distended with food, and a disagreeable gnawing and feeling of contraction when it is empty. Digestion is not impaired to such an extent as it is found in some other cases, yet the symptoms are exceedingly unpleasant.

The gastric juice may be increased in quantity or deficient, or may be changed in quality, being too active, or not active enough. In the first instance, though normal in quality, the excess impairs digestion, and by its acrid properties irritates the stomach and causes pain and unpleasant sensations. It is this excess that gives rise to pyrosis or water-brash. It may be excessive simply by too great dilution; the excess may be at the period of digestion, or in the interval when the stomach is empty; in the first case, there are acid eructations with more or less of the partially digested food; the last is attended by severe heart-burn.

If deficient, the causes of imperfect digestion would seem to be evident, but this is not the case, for the deficiency may be only in one element, as of an acid, or of water, or of pepsin, or it may be deficient on account of the intense acidity of the secretion irritating the stomach and checking its formation. In these cases the symptoms are varied, but there is evidence of imperfect digestion, and more or less unpleasant sensations at the epigastrium.

The secretion may be irregular, giving rise to a craving, with pain at the stomach, cramp, heart-burn, etc., in the intervals between meals, and sometimes nausea and vomiting, or a burning sensation, and unpleasant eructations, two or three hours after eating. This irregular secretion, if it continues, causes great irritation, sometimes disorganization of the mucous membrane, and may cause its digestion if its innervation is enfeebled by injury or severe shock to the system. Impaired action of the muscular coat will undoubtedly derange the process of digestion, as it depends, to a considerable extent, upon the continual

movement and attrition of the food. The general symptoms are those common to the other forms of dyspepsia, but there is an absence of pain, and, in consequence, gaseous accumulations and uneasiness from distension.

The general sluggishness of the system, especially the torpor of the nervous system, and slow action of other organs, with obstinate constipation of the bowels, are additional indications. The reverse of this is productive of fully as serious consequences, as the food is forced through the pyloric orifice before stomachic digestion is complete. The result is diarrhœa, with imperfect nutrition, great loss of strength and flesh, and, if it continues, death from exhaustion.

Changes in the circulating fluid may give rise to dyspepsia, but they more frequently intensify it by preventing normal nutrition of the stomach. All have observed the intimate relation existing between the blood and the stomach in acute diseases; hence, in fever, though the appetite may demand food, yet digestion is slow and imperfect; though usually the appetite disappears with the power to digest. In many diseases in which the blood is loaded with impurities, we find that all means directed to the stomach are inefficient; we must first remove the detritus from the blood, and having secured a normal circulating fluid, though small in quantity, digestion can be again established. Torpidity of the bowels, and inactivity of the skin, doubtless affect the stomach in this way, in addition to the extension of the derangement by continuity of structure and sympathy.

The most common of these causes of dyspepsia, and one that should be carefully watched for in all these cases, is derangement of the urinary secretion; I have seen cases in which all other means having been exhausted, a treatment directed to restore this secretion, has radically cured the dyspepsia. That this is the fact, is proven conclusively, when we observe that in every derangement of

the kidney of any considerable duration, the function of the stomach is one of the first impaired.

Like all other functions, perfect digestion depends upon normal innervation; and in this case it is dependent upon the normal condition of three parts of the nervous system. The great sympathetic nerve seems to be the governing power in a state of health; the pneumo-gastric nerve is distributed to it to connect it with the heart, lungs and brain, and it is connected with the spinal cord by communicating filaments to the sympathetic gangliæ. Disease of any of these sources of innervation may give rise to dyspepsia, and conversely, disease of the stomach may give rise to derangement of these different parts of the nervous system.

Derangement of innervation manifests itself in two principal forms—irritation and atony. The first, as we have already noted, may arise in and be confined to the stomach, or it may be the result of distant lesions. In the first place, we have irritation of the peripheral nerves, with determination of blood, derangement of secretion, and other results that follow. In the last, we have the same effects, but the cause is distant, as in irritation of the stomach from disease of the brain and spinal cord. The severest cases of irritation we ever witness, are from this cause, as in some cases of cholera infantum. We again see cases in which the irritability of the stomach depends upon disease of the spinal cord; and cases in which we are convinced that the lesion is one of the sympathetic nervous system, though we are unable to prove it.

Derangement of the stomach reacts on the nervous system, and organs supplied by the same system of nerves. Thus, we have hypochondriasis, hysteria, irritation of the spinal cord, cough, expectoration, and seeming disease of the lungs, palpitation and other disordered action of the heart, as its result.

The character of the ingesta is very important as an element of dyspepsia. Food may be taken in too large

quantity, or the quality may be such as to overburden the stomach; hence its continuance gives rise to imperfect digestive power. Abnormal changes taking place in the food, may not properly be considered a cause of dyspepsia, but rather a result, and yet serve to perpetuate it. These may be divided into putrefactive decomposition and the formation of sulphureted hydrogen; simple fermentation giving rise to carbonic acid; fermentation forming lactic or butyric acids, and the formation of sarcenia ventriculi.

SYMPTOMS.—The principal symptoms have been named as we considered each lesion, but we may reconsider them with advantage. Dyspepsia, as we before remarked, is imperfect digestion, and from this we have feeble and imperfect nutrition, and the results that flow from it, derangement to a greater or less extent of all the functions of the body, and loss of flesh and strength. Unpleasant sensations in the region of the stomach are always present in some degree, but vary as regards its condition; pain, burning, sense of soreness, tension, fullness, weight, tenderness on pressure, are the principal ones, and for the diagnostic bearing of them I would refer to the preceding description.

TREATMENT.—As will be gathered from the lengthy description of the disease above given, the treatment of dyspepsia will have to be varied to meet the wants of each individual case. In some the treatment will be mainly directed to the nervous system; in others the skin or kidneys are principally at fault, and we will have to determine the character of these diseases, and cure them, in order to remove the dyspepsia. It is only those, therefore, in which the disease is strictly confined to the stomach, that can be managed by an unprofessional person.

In all cases in which there is pain in the region of the stomach, and tenderness on pressure, counter-irritation is one of the most useful means. In simple cases the repeated use of the mustard plaster will answer,

or we may direct a flannel bandage, wet with cider vinegar, to be continually worn, or used only at night. In the severer cases, the irritating plaster will be the most useful remedy.

If there is much irritation of the stomach, especially if attended with nausea, use the peach-tree bark tea. It is made by taking the young limbs of the present year's growth, scrape the bark off, and cover with boiling water; the dose will be from a tea-spoonful to a table-spoonful, four or five times a day, or oftener. There is no other agent with which I am acquainted that exerts a better influence upon the stomach than this, and I have known many persons radically cured by its use.

The collinsonia is another excellent remedy, and one I very frequently employ. Take equal parts of essential tincture of collinsonia and simple syrup, and give a tea-spoonful four or five times a day. The hydrastis, or yellow-root, is another excellent remedy. Add half an ounce of the finely-pulverized root to six ounces of water and two of alcohol; let it be well shaken, and taken in table-spoonful doses, three or four times a day.

In all cases strict attention should be paid to the skin, using a bath every day, or every other day, with brisk friction. The bowels must be kept regular, by strict attention to the periods for their action, using injections or mild cathartics if they should become necessary. The food should be carefully selected, and taken in moderate quantities, so as not to overwork the enfeebled stomach. Those articles which are found easy of digestion, and at the same time nutritious, are the best. This is one of the most important points in the treatment; for if the stomach is gorged with food three times a day, in quantities that it can not dispose of, we need not expect it to get well, any more than we would a sore on the surface, if we kept rubbing it or breaking it open.

DISEASES OF THE LIVER.

The liver has played so important a part in medicine for the last few hundred years, that it would look like sheer neglect to pass it by without a word; and yet we will find that its diseases are few in number, and of rare occurrence. Physiologists have hardly as yet determined the function of the liver, further than that nature seems to have made every provision for its taking care of itself.

In former years almost every disease was attributed to the liver. Did a man have a headache, his liver was inactive; if his mouth was foul, and stomach in bad condition, his liver was torpid, and needed stimulation; if he had wandering pains in his body; if he was nervous and irritable; if his food did not digest; if he had constipation or diarrhœa, fever, or imperfect circulation, it was all the same—the liver was deranged. If a person felt bad, and did not know what was the matter with him, especially if it continued for some time, all his friends would decide that he had *liver complaint*, and the doctors would ratify the decision. Some physicians never get further in the study of medicine than the liver; and no matter what the pain or ache, or what its location—the liver was affected. All the physical ailments seemed to spring from it, as from some foul spot—the gehenna of the human body.

It was a pleasing delusion for both doctor and patient, as there seemed such a certainty in it, and especially such certainty in the selection of medicines to remove it. The liver being affected, of course medicines must be taken to act on it; there was but one such medicine—mercury—hence it became applicable in all cases, and even the dull-est mind was capable of comprehending this much of the science of medicine.

A remarkable change, however, has come over the profession and the people in regard to this delusion, and it is

now well known that the liver plays a very unimportant part in the diseases of the body, and that what seemed such a pleasant practice has destroyed more victims than any war, pestilence or famine that ever prevailed.

Inflammation of the liver is of very rare occurrence, so rare that I do not think I have met with but one case in three years. The symptoms are similar to other forms of inflammation, pretty high fever of a remittent type, and deep seated pain in the right side under the false ribs. The pain is dull and obtuse, and is the characteristic symptom, though there are evidences of arrest of function in the constipation, and clay-colored stools, when obtained by medicine. The disease sometimes runs on to suppuration; inducing very marked prostration, with hectic fever and night sweats. The abscess may discharge externally, or into the bowels, and in some rare cases it passes through the diaphragm, and is discharged through the lungs. The treatment of inflammation of the liver will not differ from that proper for other inflammations, further than the local applications will be to the seat of the pain.

A condition of *chronic inflammation* or irritation of the liver was formerly of frequent occurrence, owing to the profuse use of *blue-pill* and *calomel*, but now it is rarely met with. The symptoms were those of deranged digestion, irritation or atony of the stomach, torpor of the bowels, pain in the right shoulder and back, headache, with sallow, yellowish skin, loss of appetite, etc. If I should meet with such a case now, I would use the alkaline bath thoroughly, stimulate the liver and bowels to action with the podophyllin pill, and give a tonic, as the collinsonia or hydrastis. If there was tenderness on pressure in the region of the liver, the irritating plaster would be an excellent remedy.

Excessive action of the liver occurs as the result of irritation, and congestion of blood. The bile being an irritant to the intestinal canal, will, if poured into it, give rise to

diarrhœa, the stools being yellowish, brown or green. In some cases bilious vomiting also occurs, and at times there is considerable pain in the bowels, like colic. If the bile is not poured into the intestinal canal, it will be absorbed and produce jaundice.

In these cases I would have the bowels freely evacuated with the compound powder of jalap, or similar remedy, and then give an infusion of the compound powder of rhubarb, with from one to three grains of opium at night. Bathe the patient thoroughly, use the hot foot bath, apply a mustard plaster to the side, and if necessary give a special sedative.

Torpor of the liver is of more frequent occurrence than any other functional derangement, and is probably due in a majority of cases to disease of adjacent parts of the intestinal canal. It is frequently associated with dyspepsia, and hence the prominent symptoms of that disease were formerly attributed to the liver.

The treatment recommended for dyspepsia will be appropriate for this disease, adding a sufficient quantity of podophyllin and leptandrin, to gently stimulate the liver to action.

Gall-stones are sometimes formed in the liver, or gall-bladder, and, passing thence to the intestine, they give rise to very severe pain. The pain usually comes on suddenly, in the right side; is sharp and lancinating, but in a few moments it passes off, leaving a dull, heavy aching. In a short time it comes on again, and continues longer, and the succeeding intervals of ease are very short. At last the paroxysm is so excruciating that the sufferer bends himself double, or rolls about the floor, at the same time pressing his hands against the pit of the stomach, which eases the pain. Thus it continues until the concretion has passed, which may be but a few minutes, or it may be hours.

The best treatment in this case is to put the patient in a hot bath, or use the hot blanket pack, giving some warm

diaphoretic infusion. If the pain is very severe, a full dose of opium may be given, or the patient put under the influence of chloroform.

JAUNDICE.

SYMPTOMS.—The symptoms of jaundice vary very greatly, depending upon the cause, the extent of disease of the liver, and its complications. Usually, there is disturbance of the bowels, colicky pains, constipation, the fœces being clayey, pale, and scanty. The mouth is dry, has a bad taste, tongue coated, and sometimes nausea and pain in the head. The yellow tinge usually makes its appearance in the eyes, and gradually extends to all parts of the body, the color being deepest in the folds and wrinkles of the skin. Usually the skin is harsh and dry, and the urine high colored, at first yellowish, but afterward saffron-colored, frequently coloring the clothing that it comes in contact with.

In some cases febrile action is a marked feature of the affection, the fever being remittent or intermittent in its character, and attended with weight and tenderness in the right side, and marked derangement of the digestive functions. These cases are generally acute. In others it comes on slowly, with symptoms of marked cachexia and prostration. The skin changes its color very gradually, but at last, after weeks, or sometimes months, becomes of a yellowish-green or bronze color. In this case the disease will be found to depend on serious structural lesion of the liver. In others, the symptoms are developed with rapidity; the skin becomes intensely yellow, or yellowish-green; there is great prostration of strength, languor, listlessness, great depression of the nervous system, and finally delirium or coma, the disease frequently terminating fatally. Or, it may come on very slowly, the skin gradually gaining a dull yellowish tinge, the symptoms being those described under the head of deficient secre-

tion or torpor of the liver. In this case the jaundice is from retention of the materials of the bile in the blood.

TREATMENT.—As jaundice depends upon such diverse conditions, no course of treatment could be given that would correctly guide the inexperienced. The stimulant treatment of the liver, which would prove curative in one form, would greatly aggravate the disease in another. If, therefore, I was to recommend any course in this case, it would be to use the warm or vapor bath, and take internally a solution of acetate of potash, to stimulate the removal of the coloring matter by way of the kidneys. This is one of the most successful plans of treatment in all cases, and will not produce injury in any.

DIARRHŒA.

Diarrhœa is frequently symptomatic of other affections, or indicative of disease of the small intestines, as in the cases just noticed; but it is also, in many cases, an idiopathic disorder. We may divide it with advantage into the following forms: 1st, From irritation of the intestinal canal; 2d, From increased secretion of bile; 3d, From atony of the intestines; 4th, From congestion of the portal veins, and determination of blood; 5th, From increase of mucous secretion; and 6th, From imperfect digestion.

SYMPTOMS.—Diarrhœa, arising from *irritation*, may be caused by acrid and irritating ingesta, or result from exposure to cold, or from the arrest of other secretions. The operations are copious and feculent, sometimes preceded by griping pains, and occasionally attended with an urgent desire to go to stool. The tongue is usually loaded, an unpleasant sensation at the stomach, loss of appetite, and frequently a tendency to headache. As the diarrhœa continues the strength is materially affected, though there is no febrile action at any time,

Bilious diarrhœa results from hyper-secretion of bile,

and may arise from the causes named above. It is rather a common form of the disease in the summer, and in hot climates, and in intemperate persons. The evacuations are at first feculent, but green, or greenish-yellow, and pultaceous; but as the disease advances, are more profuse and watery. If it continues for some time, they frequently contain more or less mucus, sometimes in loose pieces, at others in thin, glairy, and gelatinous pieces. There is sometimes a feeling of tension in the right side, and soreness on pressure; and there is considerable griping pain attending and preceding the discharges from the bowels. The skin is dry and harsh in many cases, and the urinary secretion scanty and high-colored; the tongue coated, a bitter taste in the mouth, and loss of appetite, with sensations of nausea and disgust.

Atony of the intestinal mucous membrane gives rise to diarrhœa, by the relaxed vessels allowing their contents to escape. In all diseases attended with great loss of power, we have examples of such profluvia, as in asthenic bronchitis, the œdema of local debility, etc. In this case the operations are large and watery, or, in some cases, a watery mucosity, unattended with pain or suffering of any kind. The discharges pass so freely that the patient has sometimes but little notice to prepare for them, or they pass almost involuntarily. There is loss of appetite to some extent; the skin is cool, pale, soft, and relaxed, with perspiration; the urine light-colored and of low specific gravity. The debility is marked.

Determination to the intestines, accompanied by partial congestion, gives rise to a diarrhœa, attended by large and fluid evacuations. There is more or less soreness of the bowels and griping pains preceding the operations. The stools are of every shade of color, from pale clay to a greenish, or brown color, and are sometimes preceded by nausea. The skin is usually dry and harsh, the pulse hard, the tongue coated, the appetite gone, urine scanty,

some headache, with tumid bowels, and some pain or soreness on pressure.

Increased mucous secretion gives rise to that form of diarrhœa termed catarrhal. It occurs more frequently in old persons and children, though it may affect all ages. The stools consist of mucus, with a small proportion of feculent matter, sometimes large, thin, and gelatinous, looking like semi-transparent mucilage; at others, thick and white, or colored by the fæces. At first it gives rise to but little disturbance; but as it continues, the strength fails, the skin becomes dry and harsh, the appetite much impaired, with great loss of strength and emaciation.

Diarrhœa from imperfect digestion is known by the name of *lientery*; it is most frequently observed in children, and rarely in adults. It is undoubtedly owing to imperfect action of the stomach, and increased peristaltic action of the bowels. The evacuations consist in part of fæces, and in part of food, which is discharged from the bowels in nearly the same condition in which it passed into the stomach. Sometimes there is pain attending the operations, but at others none, except a feeling of rawness and soreness of the rectum; if it continues, the patient soon exhibits the effects of arrest of digestion, in a marked marasmus, terminating in stupor and death by exhaustion. During the entire period the appetite is usually good, sometimes voracious, and there is no manifest lesion of any other function.

TREATMENT.—Common feculent diarrhœa frequently requires no treatment, as when the irritating matters are removed, it ceases itself. If, however, there is much griping, with colicky pains, the compound powder of jalap and senna may be administered in *scruple* doses every four hours, until there is a free evacuation and a cessation of the pain. Following this, if necessary, we may give compound syrup of rhubarb and potash, one and a half ounces; paregoric, half an ounce; mix; a teaspoonful every hour or two; or, if necessary,

an astringent, as the tincture of catechu, kino, or geranium.

In bilious diarrhœa, I usually employ leptandrin, dioscorin, geraniin, ten grains each; opium, five grains; mix, and divide into ten powders, of which one may be given every two hours; or, essential tincture leptandra; essential tincture dioscorea, each half an ounce; compound syrup of rhubarb and potash, two ounces; in doses of a teaspoonful every two hours, until the discharges are changed, when we may substitute an astringent if necessary. If there is much febrile action, or the skin is dry and harsh, the hot mustard foot-bath, with a bowl of hot pennyroyal or sage tea, will be beneficial; and if considerable pain or griping, a mustard plaster to the bowels.

Diarrhœa from atony should be treated with stimulants and astringents. I have used the aromatic tincture of guiacum, with and without tannic acid, in doses of a teaspoonful every hour, with the most marked success; or, oil of cajeput, oil of anise, each one drachm; alcohol, one ounce; syrup of rhubarb and potash, two fluid ounces; mix, and give in the same doses; or, leptandrin, ten grains; capsicum, opium, each five grains; mix, and make ten powders, of which one may be given every two hours; in mild cases the common astringents will prove sufficient.

In diarrhœa, the result of determination and congestion, if severe, I order cups to the abdomen, followed by warm fomentations, the hot mustard foot-bath, and in some cases the spirit-vapor bath, with the internal administration of leptandrin, and a demulcent; or, we may use the white liquid physic in this case with advantage, following it with the syrup of rhubarb and potash. In some of these cases I alternate the leptandrin with the sub-nitrate of bismuth, in doses of five grains; if symptoms of atony result, with loss of strength, the stimulants first mentioned should be employed.

In mucous diarrhœa, we frequently find it advanta-

geous to clear the bowels by a mild purgative; for this purpose, castor oil and turpentine, or the white liquid physic, or the compound powder of rhubarb, or leptandrin and jalap, with small doses of podophyllin, thoroughly triturated with loaf sugar, may be used. This should be accompanied by the hot foot-bath, and compound powder of ipecac and opium; and if there is any tenderness of the bowels, a sinapism, with hot fomentations, the hot sitz-bath, or the wet bandage; after the bowels are evacuated, the syrup of rhubarb and potash, with essential tincture leptandra, will usually be sufficient; if not, it may be alternated with one of the vegetable astringents. In some cases, the stomach being much deranged, it is advisable to commence the treatment with an emetic of ipecacuanha.

Lienteric diarrhœa should be treated by the use of the bath, with brisk friction, the vinegar bandage to the lower part of the trunk, or some stimulant embrocation; bland and easily-digested food, and exercise in the open air. Internally I use the hydrastin and leptandrin, with a solution of chlorate of potash and carbonate of ammonia. The white liquid physic will be found a good remedy, as will also the dilute nitric acid, with simple syrup. Quinia, with hydrastin, seems sometimes to answer an admirable purpose, and, with the mineral acids, is sufficient for the relief of the disease.

CHOLERA MORBUS.

Cholera morbus is usually caused by acrid or irritating ingesta, or from long continued torpor of the intestinal canal, the secretions being thereby retained, or from sudden changes of temperature, or arrest of secretion in the warm months of the year. It usually comes on in the summer and autumn, and in some years more than in others.

SYMPTOMS.—It usually makes its appearance with pain

about the umbilicus, and a feeling of nausea and prostration, and desire to evacuate the bowels. In a short time a diarrhœa sets in, the discharges being large, fluid, and, to some extent, feculent; usually, the nausea soon passes to vomiting, the attack coming on with the disposition to go to stool, and being long continued, and attended with much straining. The pain in the bowels varies greatly, in some cases being extremely intense, at others but slight; the stools vary in character, in some cases yellow, or yellowish brown, and accompanied by vomiting of bile, at others becoming lighter and lighter in color, until they seem nothing but water with whitish flocculi in it, like the rice-water discharges of Asiatic cholera. The first variety has taken the name of *bilious cholera*; in other cases, the bowels seem to be distended with gas, the patient passing considerable flatus at stool. This is termed flatulent cholera.

As the disease progresses, the patient's strength becomes exhausted, the vomiting or retching is more severe, the discharges from the bowels more frequent, and the pain severe and less easily borne. Now, the spasmodic action of the muscles of the lower extremities frequently ensue, and sometimes of the abdominal muscles; the cramps are exceedingly painful, and cause the patient to cry out with pain when they come on. The pulse is now small and fluent, the extremities cold, and the surface bathed in a cold, clammy perspiration. If not arrested, we find that the sufferer's strength is gradually exhausted, the mind wanders, and the patient dies.

TREATMENT.—Though a severe disease, the treatment is the simplest possible. We administer at first the compound tincture of cajeput, in doses of a teaspoonful every fifteen minutes, until the patient feels a sensation of agreeable warmth in the stomach, and then at less frequent intervals. This almost invariably checks the vomiting, and in a large majority of cases, the diarrhœa. Another very efficient remedy is the aromatic tincture of guaiacum,

given in the same doses. If the nausea is not controlled by these means, we may give an infusion of peach tree bark, or of the compound powder of rhubarb, in small doses, or of sub-nitrate of bismuth, or morphia. Usually these means are not required.

A sinapism to the epigastrium, and extended over the entire surface of the bowels, and followed by hot fomentations, afford marked relief in some cases. I prefer, however, the application of a towel wrung out of cold water. The hot mustard foot bath may be used with advantage, and in some cases the vapor bath. If the cramps are severe, friction with mustard will give relief; or, in worse cases, we use the compound tincture of cajeput. In very severe cases, the surface being cold, and the pulse hardly perceptible at the wrist, the patient may be wrapped in a blanket wrung out of hot mustard and water.

ASIATIC CHOLERA.

A disease, having some semblance to cholera, was partially described by the Greck physicians, which was probably our cholera morbus. Again, in 1689, Dellen described a disease very much like it.

It was not until from 1774 to 1790, that the disease we know as Asiatic cholera, made its appearance, and was then confined to India, though committing great ravages in the Bengal army, it is still believed by many that even this was cholera morbus. The descriptions are so imperfect that it is difficult to determine the character of the affection, and as it was so much milder than the cholera of the present century, we may consider it as not being a variety of this disease.

In August, 1817, the terrible disease known as Asiatic or spasmodic cholera, made its appearance at Jessore, about a hundred miles north-east of Calcutta. It reached the latter place early in September, having destroyed thousands of the inhabitants in its course. It gradually

passed over the Indian peninsula, and had, by 1823, extended itself in one direction, to the shores of the Caspian Sea, and in another as far as the Mediterranean and the borders of Russia; during this time it counted its victims by millions, nearly depopulating certain sections of country. In 1831, it again made its appearance in Russia, and extended over Europe, reaching England in October of this year. It appeared on this continent at Quebec, on the 10th of June, 1832, and at New York on the 24th of the same month. Its spread in the United States was rapid, and its mortality fearful, and it did not entirely cease until 1834.

Its second appearance in this country, and the third choleraic pestilence that we have accounts of, occurred in 1849. As before, it spread rapidly, and the mortality was very great. It seemed to be confined to no age or condition, but attacked the population indiscriminately. It recurred in 1850, 1851, and in a sporadic form in 1852, having thus lasted four years. The causes of cholera are not known; many ingenious speculations have been made, but we are no nearer the truth than we were at the commencement of the first epidemic. It undoubtedly depends upon some peculiar constitution of the atmosphere, which once generated in India, was gradually propagated over the entire globe.

Cholera is generally believed to be contagious, and its epidemic progress, and extension along traveled thoroughfares, and its appearance on the sea-board only when a vessel has come from an infected port, is urged as proof. We grant these are facts, and further that many cases are known, in which the commencement of the disease in a place immediately succeeded the introduction of a person laboring under cholera from a place where it prevailed. Or, that it appeared first in a person coming from an infected district, possibly to escape the malady, and after two, three or more days had elapsed; and that the disease, where it once appeared in a house, was rarely satisfied

with one victim. Admit all this, and yet we see evidence sufficient to disbelieve its contagiousness. Those who were most with it, who nursed in it, who took no precaution to avoid it, other than temperate living, rarely had the disease. It was more apt to attack those who secluded themselves from fear of the disease, and who used undue precautions to avoid it. The poison is an atmospheric one, and though the seeds of the disease are propagated along traveled routes, yet where once disseminated in a place, the mere contact with a person having it, is not likely to increase the danger. We may well compare it to the virus of small-pox, the most minute portion being as potent, when introduced into the blood, as the largest quantity.

SYMPTOMS.—In some cases, the attack of cholera was preceded by a serous diarrhœa, for two, three, or four days, but in a majority of cases there were no premonitory symptoms up to the day of attack. Usually, the first evidence of the disease was a feeling of great prostration, and a copious evacuation from the bowels. With the first diarrhœal discharge, in many cases, the patient was completely prostrate, and would sometimes pass into the collapsed stage with but two or three. At other times the discharges from the bowels were very frequent and large, and from their peculiar appearance, looking like the water in which rice had been boiled, denominated rice-water discharges. Nausea, with prolonged retching and vomiting, frequently came on with the first discharges from the bowels, or during the progress of the disease. With the full establishment of the affection, the extremities were cold; and cold, clammy perspiration made its appearance on every part of the body, sometimes it was so great as to stand in drops, seeming to be glutinous and sticking to the hand. The pulse was slow and feeble, the artery easily compressed, and the circulation arrested; gradually, as the disease progressed, it failed more and more, until in the stage of collapse it could not be felt in

the extremities. With the full development of the disease, spasmodic action of the muscles, or cramps, would come on, usually at first in the lower extremities, but at last affecting all parts.

The muscles would contract into hard, rigid knots, the patient suffering excruciating pain, which was best relieved by compression and brisk friction. A marked change was now noticed in the appearance of the patient; he seemed to have lost flesh as much as he would in two or three weeks' sickness; the eyes were sunk in the head, the countenance pinched and contracted and of a ghastly white color, the lips and mouth of a leaden purplish hue. The disease continuing, it soon passes into the stage of collapse, the entire surface being cold and covered with a clammy perspiration, a remarkably cadaverous appearance of the countenance, and a shrunk and shriveled skin. The pulse at the wrist is very feeble, and seems very much like drops of water trickling under the finger, and at last is not perceptible. The discharges from the bowels are now involuntary, consisting of simple water, with the whitish flocculi heretofore named. The cramps still continue, frequently with increased severity. Sometimes the patient's mind wanders, but at others it is clear and composed to the last.

The disease is of variable duration, sometimes terminating fatally in an hour or two, most generally within twenty-four hours, though in some rare cases it lasts two or three days. If it terminates favorably, we find that much care is necessary during convalescence, as the bowels are so feeble, and there has been such a severe shock to the system. A low grade of fever not unfrequently sets in after it, continuing several days, and requiring careful management.

TREATMENT.—The treatment I adopt in a case of cholera is such as will support the flagging powers of life, by strong stimulation. It may not be successful in all cases, but I feel satisfied that it will be attended by as good results as

and other. If there is irritability of the stomach, with continued vomiting, so that remedies will not remain upon the stomach, I administer an emetic of the compound powder of lobelia, or of salt and mustard. In a majority of cases, however, we have nothing better to settle the stomach than the compound tincture of cajeput, or Hunn's Life Drops. It should be administered in doses of a teaspoonful every five or ten minutes, until the vomiting ceases, and there is returning warmth to the extremities, and feeling of heat when the medicine is taken, when it may be given less frequently. To aid its action, I direct flannel cloths, wrung out of hot mustard and water, to be applied over the entire abdomen, or, if this seems impossible, we may use strong salt water cold, or equal parts of turpentine and tincture of camphor. If the case was approaching collapse, I should wrap the patient in a blanket, wrung out of mustard and water, as hot as could be borne, or, if there were no facilities for getting this, I would use the cold wet sheet pack, the water being pretty strongly impregnated with salt. One application, I am satisfied, is as serviceable as the other; in fact, I should prefer the last, if it were not so unpleasant, and objected to by the friends.

The cramps are an exceedingly troublesome feature of the disease, and are best removed by friction with dry mustard. This is also recommended to bring the circulation back to the surface, but without the slightest effect, until the internal remedies commence to affect the system. The compound tincture of cajeput is much the best local application, if it were not so costly.

The treatment named above seems very meager, and yet it is the best that I have tried myself, or witnessed with others. Other remedies possessing similar properties might be substituted for the compound tincture of cajeput, but I doubt their being equal, if as good. Those that seemed to exert the best influence were the tincture of xanthoxylum, aromatic tincture of guaiacum, and camphor.

CHOLERA INFANTUM.

Cholera infantum, or *summer complaint*, is a disease of very frequent occurrence, and one of the most difficult that we are called to treat. It occurs usually during the second summer, or the period of first dentition, but may come on as early as the age of six or eight months, or as late as the third or fourth year. It is difficult to determine why at this time the child should be so susceptible to gastro-intestinal irritation.

Many have urged dentition as the cause, but as that is a physiological process, except when disturbed, we would expect to find the disease only in cases of dental irritation, whereas we find it in children who have no teeth, who are not cutting teeth at the time the disease commences, who have all their deciduous teeth, except the four last molars, or who show no swelling, tenderness or irritation of the gums. We would rather conclude that at this period there is a change in system consequent upon the change in the food of the child, and its being no longer dependent upon its mother for sustenance. If the child is of vigorous parents, robust and healthy, this change is effected without disease, but if of feeble vitality, cholera infantum is almost sure to result.

It occurs during the summer, usually making its appearance in June and July, and in the severer cases lasting until frost and cool nights in the fall. A continuous high temperature has much to do in bringing it on, and it is more frequent in seasons in which this is the case. As the weather becomes cool in the fall it is mitigated, and with the appearance of frost it ceases, though we find that the sudden changes to cold during the summer are rather injurious than otherwise.

Cholera infantum usually makes its appearance at first as a simple diarrhoea, which gives little uneasiness and seems not to affect the health of the little patient. After continuing thus for a week or two, it is noticed that the

child is becoming very thin in flesh, its appetite is impaired, it is very thirsty, and when the stomach is overloaded there is nausea and vomiting. As the disease progresses, the desire for drink becomes more craving, the evacuations from the bowels more frequent, and the little patient wasted to a mere skeleton of its former self. The discharges from the bowels vary much in character in different cases, and even in the same case at different times. Sometimes they are yellowish, with more or less stringy mucus mixed with them, showing disease of the mucous follicles; at others they are greenish, and have a sour smell; at others, clayey; again, almost white, and rarely a dark-brown or black.

In febrile cholera infantum the skin is harsh, dry and constricted, in some cases seeming to be drawn upon the patient like parchment. There is great irritability of the nervous system, the patient being restless and uneasy, never satisfied, always changing its position, wanting everything, satisfied with nothing, and especially restless and wakeful at night. The child seems to be worse in the after part of the day and evening, and frequently every other day. When the disease becomes very severe, it is almost impossible to keep the child in bed at night, the heat seems to torture it, and it is only satisfied when laid where it can turn freely about, or when carried from place to place.

In the non-febrile form, the skin is soft, relaxed and flabby, the extremities cool, the bowels distended or pendulous, the tongue broad, flabby and coated, and the pulse small, soft and fluent. The child is not so restless as in the preceding case, seems stupid and dull when nursed or in a comfortable position, but wants its own way. In both cases the appetite is alike impaired, there is the same nausea, the same desire for drink, and the same prostration of strength.

We sometimes find the brain seemingly affected in these cases, when there is a continued moving of the head from

side to side, the child sleeping with its eyes partly open, and rolling the eyeballs upward. If the pupils are somewhat dilated and do not contract freely upon exposure to light, I am satisfied there is congestion with effusion, and consider the patient's prospects very poor. Occasionally determination to the brain sets in, the head is hot, there is throbbing of the carotid arteries, contraction of the pupil, and intense restlessness and uneasiness.

TREATMENT.—The first thing to be accomplished in the treatment of cholera infantum is to quiet the irritation of the stomach. For this purpose I would strongly recommend the peach-tree bark tea, heretofore spoken of. Take the young sprouts, and scrape the bark off until a sufficient quantity is obtained, cover it with boiling water, and when cold it will be ready for use. Give it to the child in doses of half a teaspoonful every half hour, or a teaspoonful every hour. If this does not answer the purpose, employ an infusion of the compound powder of rhubarb, No. 7, using it the same way. The neutralizing cordial will sometimes answer the same purpose, at others I use chloroform one drachm to simple sirup two ounces, a teaspoonful every hour. Sub-nitrate of bismuth thirty grains to spearmint water two ounces, in teaspoonful doses, is sometimes very good.

With the arrest of the sickness of the stomach the worst difficulty is over, for though we may not control the diarrhœa at once, we will have placed our patient in such a condition as to give us time. In many cases the administration of an infusion of the compound powder of rhubarb in teaspoonful doses every hour, until it changes the character of the evacuations, rendering them dark like the medicine, and then in less frequent doses, answers a good purpose. If the stools are light or clay-colored, leptandrin and geraniin are the appropriate remedies, or small doses of the white liquid physic may be given. In other cases the sub-nitrate of bismuth may be administered with the most marked advantage, especially if there is a ten-

dency to dysentery, or tenesmus attending the discharges. At other times the common vegetable astringents may be used, as in cases of common diarrhœa. If the skin is harsh and dry, I administer tincture of aconite twenty drops to water four ounces, in doses of a teaspoonful every hour, until the surface becomes moist and natural, and then follow with quinine in doses of one grain every two hours, until two or three doses are taken.

The epilobium is a most excellent remedy in some of these cases; a strong infusion is prepared and given in doses of a teaspoonful every hour. The neutralizing cordial alone, or with the addition of one drachm of chloroform to two ounces, sometimes answers an excellent purpose to check the diarrhœa.

The bath is an important agency in the treatment; it may be used cold, tepid or warm, according to the indications, and may be medicated by the addition of salt, bicarbonate of potash, capsicum, or a decoction of bitter agents. The food will vary in different cases. If the child nurses, it may be restricted to the mother's milk, or if this disagrees, cow's milk will sometimes be appropriate; in other cases, farina, sago, etc., seem to answer best; but frequently I have seen the best results from gratifying the child's appetite for meat, especially fat bacon, ham, dried beef, beef suet, etc.; fatty matters, when they agree with the stomach, answer an admirable purpose. Stimulants may be employed, as the brandy with epilobium, already referred to, but the best is undoubtedly Catawba wine, which sometimes seems to act as both food and medicine.

COLIC.

The general features of colic are griping pains in the bowels of a more or less constant character, constipation, and absence of inflammatory or febrile symptoms. It may be dependent on various causes, as acrid ingesta, irritating secretions, gaseous accumulations, spasmodic

contraction of the muscular coat from irritation of the sympathetic and spinal nervous systems, structural disease of the intestinal canal, and disease of the blood.

SYMPTOMS.—The *common* form of colic is produced most frequently from irritating ingesta, or acrid secretions. It commences with a severe griping pain in the region of the umbilicus, though somewhat wandering in its character, changing its position from one side to the other, and from above to the lower portions of the abdomen. It is not constant, but remittent, giving the patient a moment's ease, then recurring with increased severity. In some cases it seems to be confined to the stomach, as if it was contracted upon itself, (cramps of the stomach,) but more frequently involving the entire intestinal canal.

There is no tenderness on pressure, but frequently relief is afforded by it; the skin is cool, the pulse regular and not increased in frequency, and there are no symptoms of febrile action. The bowels are usually constipated, though if produced by irritant ingesta, there may be watery evacuations from the bowels.

It generally lasts but a few hours, though if not properly treated, it sometimes becomes very severe.

TREATMENT.—The treatment is simple. If the pain is confined principally to the stomach, or upper portion of the abdomen, and we have the evidence that the patient has been lately eating unripe fruit or other articles difficult of digestion, we would immediately give an emetic. Thirty grains of ipecacuanha in warm water, will answer the purpose admirably, or we may use a teaspoonful of mustard in half a tumblerful of warm water, or give an infusion of compound powder of lobelia. In other cases, the most effectual and quickest remedy is the compound powder of jalap and senna, in doses of twenty grains every hour, until the pain is relieved; or, if the patient objects to taking it by the mouth, two drachms mixed with warm water, and used as an enema, will answer the purpose admirably. In lieu of this, almost any of the

aromatics may be employed, or equal parts of compound tincture of lavender, and syrup of rhubarb and potash; or a tincture of the oil of anise, of peppermint, or of cajeput; or a teaspoonful of ground pepper, tincture of camphor, etc. A sinapism applied to the abdomen frequently gives relief, though I prefer a towel wrung out of cold water.

DYSENTERY—FLUX.

Inflammation of the large intestines is among the most frequent diseases of the digestive apparatus. It occurs at all ages, and in all climates, though it is more frequent and severe in southern latitudes. In this country it usually prevails to the greatest extent during the fall months, though sometimes met with during the summer. Occasionally it becomes epidemic, and is extremely severe, and at these times it has been claimed by some that it was contagious.

The causes of dysentery are chiefly sudden atmospheric changes, or a high range of temperature following a wet and cold season, over-exertion and arrest of secretion, the accumulation of morbid secretions in the intestinal canal, miasmata, and, in the epidemic form, a zymotic poison in the atmosphere.

SYMPTOMS.—Dysentery may very properly be divided into the sporadic and epidemic, and the last we will find assuming many different characters. Sporadic dysentery is sometimes preceded by constipation, but more frequently by slight diarrhœa. The patient has small mucous or bloody evacuations from the bowels, attended with tormina and tenesmus. At first they are not very frequent, but after a time they recur as often as, say five to fifteen minutes. Sometimes the disease commences with a well-marked chill, but at others none is noticed. More or less febrile action will be found in all cases, the pulse hard and increased in frequency, the skin dry and harsh, the urine scanty and high-colored, and consider-

able restlessness and uneasiness. Pressure over the colon will usually detect a soreness in some part of its course.

Most generally, in this form of the disease, the upper bowels are obstinately constipated, as the discharges consist entirely of mucus, mucus and blood, or almost pure blood. Sometimes, however, it assumes the character of dysenteric-diarrhœa, the operations having more or less feculent material mixed with them, or the dysenteric discharges being alternated with diarrhœal. Day by day we observe the disease becoming severer, unless controlled by appropriate treatment, until at last the patient is very much reduced, the symptoms assuming the character of those of the epidemic form of the disease.

Epidemic dysentery occurs in two principal forms, though there are various gradations: these are, cases with obstinate constipation of the small intestines, with an active grade of fever, and cases where there is an irritability of the entire intestinal tract, with a low or asthenic fever.

In the first form, the disease almost always commences with a well-marked rigor or chill, followed by high febrile action. The discharges from the bowels soon become frequent, are preceded and attended by tormina, the pains being of a severe cutting character. The tenesmus, or desire to evacuate the bowels, is almost constant, and is very distressing during the operation—it seeming to the patient that the desire for an evacuation would never cease. No rest can be obtained during this condition, and as a natural consequence the patient is very fretful and uneasy. The discharges from the bowels are sometimes pure mucus, at others mucus mixed with blood, and again seemingly almost pure blood, in each case the material being unchanged, not dirty or discolored as in the next form of the disease.

As it continues, we find that day by day the disease becomes seemingly more severe. The fever is remittent or continued, and very severe, the skin being dry and parched, the pulse hard and frequent, pain in the head

and back, the tongue coated, a bad taste in the mouth and loss of appetite, the urine scanty, sometimes passed with difficulty, and anxiety and uneasiness from the almost total want of sleep from the commencement of the disease. Up to the sixth or seventh day the symptoms will be thus acute; but after that we find the fever assuming a typhoid type, and the discharges from the bowels become discolored and offensive, as in the next variety.

The second form frequently commences as above described, the fever following the chill or rigor being acute. The discharges from the bowels are small, and composed of mucus and blood, and attended with an intense tormina and tenesmus. But in the progress of the disease it is found that any cathartic will start the small intestines into action, and we have the more or less offensive feculent matter passed with the dysenteric discharges, or alternately with them. When this occurs, the typhoid symptoms described below soon make their appearance. In other cases the discharges are semi-diarrhœal at the commencement, and we find this irritability of the small intestines, and sometimes of the stomach, continuing throughout the progress of the disease. This feature of the disease must be noticed; for if we should give in this case a cathartic to increase secretion from the liver, and open the small intestines, we would many times set up an irritation that we would find it impossible to quiet. Dr. Copland describes the symptoms of *typhoid* dysentery as follows: "The patient complains at first of general depression, vertigo, violent headache, increased sensibility to light, pains in the limbs and joints, and of gripings and purgings, followed by anxiety at the precordia, stupor, foul, clammy tongue and mouth, which soon becomes dry and covered by a brownish coating, a penetrating, offensive odor of the breath, and intense thirst. The pulse at first is very quick and small, and afterward weak and irregular. The stools are, from the commencement,

very frequent, in small quantity, preceded by tormina and tenesmus, and glairy or serous, and contain more or less dark blood. The urine is scanty, thick, and dark-colored. About the fourth or sixth day, a milliary eruption or petechiæ sometimes appear about the neck, breast, arms, and abdomen; and occasionally epistaxis occurs, between the fourth and eighth days, in young and robust subjects, but without becoming critical. The intensity of the tormina and tenesmus generally diminishes with the progress of the disease, and often, about the ninth or eleventh day, is replaced by a colliquative diarrhœa. The stupor is now attended by delirium; the soft solids waste and become flaccid; the surface assumes a dirty hue, and an offensive, penetrating odor issues from the body and evacuations. If not ameliorated or arrested in its progress, this form terminates fatally from the eighth to the twenty-fourth day."

Many of these symptoms make their appearance in the last stages of epidemic dysentery, and we see cases that run their course as just described. We again find others much more malignant. By the second, or third, or fourth day, the countenance is sunk, anxious, and cadaveric, the tongue covered with an offensive brown fur, sordes on the teeth, fetor of breath, a small, feeble and frequent pulse, great depression of the nervous system, and want of power to control the voluntary muscles. The evacuations, which were at first of a dirty mucus, with more or less dark grumous blood, sometimes alternated by a very fœtid feculent matter, now become reddish and slimy, resembling the washings of meat, or prune juice, and excessively fœtid and cadaverous. The tormina and tenesmus, which at first were severe, abate, and sometimes the stools are passed involuntarily, and attended with sinking and tendency to syncope. Soon delirium ensues, the patient lies on the back, slides down toward the foot of the bed, picks at the bed-clothes, and after

lasting in this condition longer than it would seem possible, finally sinks.

TREATMENT.—In the common form of dysentery, the first object to be accomplished is to get an action from the upper part of the bowels. The frequent discharges the patient is having, is the result of the inflammation, and the normal discharges from the bowels are arrested. For this purpose castor-oil, or compound powder of jalap, might be given, but the podophyllin pill will be found preferable in a majority of cases. Give just sufficient to produce fecal discharges, and it will be found that, for the time being, the discharges of blood and mucus will cease. If they return, give the cathartic in smaller doses.

To arrest the pain and constant desire to evacuate the bowels, let the patient sit in a tub of water, as warm as can be borne, and repeat it as often as necessary. In some cases, the use of the hot hop poultice will answer the same purpose. In addition, use an injection of two tablespoonfuls of starch-water and half a teaspoonful of laudanum, after each motion. The injections should be used with care, and retained as long as possible. In some cases the use of a large injection of warm or cold water, to the extent of a pint, will give great relief.

Where there is much fever, use the vapor bath, or blanket pack, and give the patient freely of some warm diaphoretic infusion. In addition, put him on the use of tinctures of aconite and veratrum, as heretofore recommended, and if the fever is periodic, give quinine, as in remittent fever.

In the severer cases, where the entire intestinal canal is irritated, the cathartic plan of treatment just named will not answer. Here we would give sweet-oil in tablespoonful doses until the accumulations in the bowels were removed. Or, we might use the compound powder of rhubarb, or neutralizing cordial, for the same purpose. After this, we give these remedies in small doses, with mucilage of slippery elm or gum arabic. An infusion of

epilobium answers an excellent purpose in this case. We use the hot hip bath and the injections, as in the preceding case.

In addition to the special treatment for the dysentery, we would pursue the same course for the fever as that named for typhoid fever. As a general rule, astringents are not well borne, but in some cases, when the discharges become large, like diarrhœa, we adopt the treatment proper for that disease.

WORMS.

Intestinal worms are of very common occurrence, in fact there is hardly a person but what has had more or less of them at some period of his life. In some sections of country every person has worms, while in others they are comparatively rare. They are produced in the intestine by the swallowing of their eggs or grub, which are exceedingly minute, and generated in very large numbers. Thus, in the case of the tape-worm, naturalists have traced its development from the *cysticercus* of the hog, which being introduced into the intestinal canal, becomes developed into a fully formed worm. Each joint of this worm contains a large number of eggs, which, being discharged with the intestinal contents, is eaten by the hog, developed into a *cysticercus*, which may in turn form a tape-worm.

The principal varieties of intestinal worms, are, the long round worm, *ascaris lumbricoides*—the small thread worm, *ascaris vermicularis*—the long thread worm, *tricocephalus dispar*, and the tape-worm, *tænia*. The long, round worm, inhabits the small intestines, sometimes passing up into the stomach or down into the large intestine. It varies in length from five to eighteen inches, and sometimes is fully half an inch in diameter. The small thread worm is principally found at the lower part of the bowel, and is usually not more than half an inch in

length, and the thickness of a thread. The long thread worm, inhabits the stomach and small intestines, is from one to two inches in length, but very slender. The tape-worm varies in length from a few feet to over a hundred feet. It is formed of joints about the size, and very closely resembling gourd seed, which are attached to each other, end to end. These joints are frequently passed at stool, and are the principal means of determining the presence of the worm.

SYMPTOMS OF WORMS.—The symptoms of worms are very obscure, so much so, that it is impossible always to determine whether disease arises from them or not. The principal symptoms supposed to indicate the presence of the long round worm, and long thread worm, are the following: The child is continually picking its nose; its upper lip swells; there is a white line around the mouth; the tongue is coated; the breath bad; the appetite variable, and there is more or less fever, and irritability of the nervous system. Though these are the symptoms of worms, yet they may exist from other causes.

The small thread worm announces its presence by irritation of the rectum, the itching being very severe and almost unbearable. It most generally comes on when the child gets warm in bed, and is so annoying that it can not go to sleep, and at times the irritation becomes so great as to produce convulsions. Its presence is known by its being found in the stools, and sometimes crawling away from the person.

The symptoms of tape-worm are not very constant. The person is usually thin in flesh, but has a voracious appetite, though it is variable. Sometimes there is pain in the bowels, but at others there is no symptom whatever of the presence of the worm, with the exception of its joints passing by stool.

TREATMENT.—The first two varieties may be removed by any of the common vermifuges. The old fashioned remedy was castor-oil and turpentine, or a tea of equal

parts of *pink root and senna*. Worm-seed oil, with castor-oil, is the basis of nearly all the patent vermifuges, but its nauseous taste renders it objectionable. Santonin, in doses of two or three grains four times a day, and worked off with any cathartic, is the pleasantest medicine. This remedy is frequently combined with sugar to form a candy, and is the principal constituent of all the worm lozenges.

The small thread worm is easily got rid of. I direct an injection of a teaspoonful of salt to a teacupful of cold water, as an injection, once a day, and in four or five days the person is entirely free from them.

Various remedies are used for the removal of the tapeworm. The most simple one is, to make an emulsion of four ounces of pumpkin seed, first removing the shells, and take it on an empty stomach in the morning. Nothing should be eaten during the day, and if it does not operate, it may be worked off with a cathartic. The male fern is another excellent agent, and is usually employed in the form of fluid extract, the dose being from one to two teaspoonfuls. Turpentine, in sufficient quantities to prove cathartic, about one ounce, has been employed with excellent results, though it should always be taken with the advice of a physician.

In conclusion, let it be distinctly understood, that worm medicines are not required often, and that much more harm than good has resulted from their employment. Let them be given only when there are good reasons for supposing that worms are present, and when they give rise to unpleasant symptoms.

DISEASES OF THE URINARY ORGANS.

The secretion of urine is one of the most important of the functions of the body, as it is through this channel that the greater portion of the nitrogenized waste of the tissues gets out of the system. Waste or destruction of

tissue is just as important in the animal economy as supply or nutrition of textures; and we find that the retention of this waste is as serious in its results as the want of material for nutrition. We have already seen that the urine contains elements that are poisonous to the human body, and that when retained in the blood in sufficient quantity, they exert the same influence that would follow the absorption of a narcotic poison.

INFLAMMATION OF THE KIDNEYS.

Acute inflammation of the kidneys is not of frequent occurrence, as they are situated so deeply, and so well protected, as not to suffer from cold or atmospheric changes, or from injury, and their circulation is so direct and free that they are not as easily affected by derangements of the general circulation as other parts. When it does occur, it is produced by the usual causes giving rise to inflammation, as cold, injuries, local irritation, the condition of the blood, the sudden arrest of accustomed discharges, too long retention of urine, the extension of inflammation from the lower parts of the urinary apparatus, etc. Usually but one organ is affected, but in some cases both are involved at one time, rendering the disease very serious.

SYMPTOMS.—Inflammation of the kidney usually commences with a well marked rigor, though sometimes but slight chilly sensations precede the fever. The febrile action is not high at first, but frequently becomes very intense in the course of two or three days. With the appearance of the chill, the patient complains of a tensive and tearing pain in the loins, which is but little increased by pressure. By the second day this pain has become a marked feature, and now extends down to the hypogastric region, in the course of the ureter, to the testes, causing retraction, and sometimes to the penis. This pain is increased by straining at stool and during micturition. The

urine, at first but little changed, is now small in quantity, passed with difficulty, and of a dark-red or reddish-brown color, and frequently tinged with blood. If both kidneys are affected, the urine will be very scanty and high colored, and passed with difficulty. In a later stage of the disease, if the calyces and pelvis of the kidney are affected, we will observe more or less mucus or muco-pus in the urine.

The constitutional disturbance becomes marked by the second day. There is frequently nausea and vomiting, especially when anything in the slightest degree nauseous or irritant is taken upon the stomach; the bowels are obstinately constipated, and acted on with difficulty; the skin dry and harsh, the pulse hard and frequent, and at first great irritation, restlessness and entire inability to sleep; but if the secretion becomes markedly scant, as from disease of both kidneys, coma or low muttering delirium sooner or later makes its appearance. If but one kidney is involved, we will find if the disease progresses, without being controlled by treatment, that the fever assumes a typhoid or asthenic character by the seventh or tenth day, with dark furred tongue, sordes on the teeth, typhomania, etc. If both kidneys are affected, the disease will terminate fatally before this, if not arrested by medicine.

TREATMENT.—Prompt treatment is necessary in this case, especially if both kidneys are involved in the disease. I should administer immediately a full dose of compound powder of jalap and senna, and bi-tartrate of potash, in equal parts, and if there were great nausea, I would pre-mise with an emetic. We use the cathartic as a most efficient means of derivation, to lessen the quantity of the circulating fluid, and to remedy in part the influence of defective secretion of urine. The special sedatives should also be employed as heretofore recommended, with the addition of full doses of gelseminum, which seems to have a direct action upon these organs. I should use it in doses

of from one-fourth to half a teaspoonful every two hours, until its influence upon the system was marked by depression of the eyelids and disordered vision. The essential tincture of aselepias, diaphoretic powder, or other diaphoretic, may be used in combination with it.

To aid the action of these remedies we will find it advantageous to use the hot sitz bath, or as I have sometimes done, sit the patient in a tub of hot water, put his feet in a bucket of hot mustard water, with a blanket drawn closely around the whole. Previous to this, it is well enough to apply three or four cups to the region of the kidneys, well drawn and scarified, and especially is this the case if both kidneys are involved. The patient being placed in bed after the bath, hot fomentations may be assiduously applied until relief is obtained. In some rare cases, we might find the wet bandage useful, but as a general rule the hot applications are best.

Until the acuteness of the symptoms has passed off in some measure, no diuretic is admissible; but as soon as the bowels are freely opened, and the skin is slightly softened, they may be used. The remedies should be very mild and unirritating, as an infusion of althæa, verbascum, apium, galium, polytrichum, etc. As soon as the secretion becomes free, we can change these for the tonic diuretics, as the hydrangea, agrimonia, collinsonia, uva ursi, etc. If there should be hemorrhage from the urinary apparatus, gallie acid may be given with the greatest confidence.

SUPPRESSION OF URINE.

Arrest of the urinary secretion may occur during the progress of any disease, or it may be the result of inflammation, irritation, or congestion of the kidneys. In any case it will be found that the amount passed is very small, or that it has entirely ceased, and on examination the bladder is not distended. Very frequently the patient will complain of pain in the loins and back, with sometimes a

sensation of nausea and debility. As the amount of urine decreases, there will be first irritation of the nervous system, followed by stupor and coma, and if there is entire arrest, in a few hours by death.

TREATMENT.—In this case I would advise the application of hot fomentations over the loins; or, instead of this, in some cases, the hot sitz bath. If there is nothing to contraindicate it, open the bowels with compound powder of jalap, or other cathartic, and then give a mild diuretic. An infusion of watermelon-seed, marsh mallow, or parsley, will answer a good purpose.

RETENTION OF URINE.

In this case the urine is secreted, but is retained in the bladder on account of inability to pass it, either from loss of power in the bladder, or stricture of the urethra. If the patient is conscious, he will complain of a sense of fullness and distention in the region of the bladder, with a desire to void urine, but inability to do so.

TREATMENT.—In many cases hot applications over the bladder will give relief; sometimes we use the hot sitz bath, and in others we direct that the patient sit over a hot decoction of bitter herbs. An injection into the bowels of a teaspoonful of laudanum to half teacupful of warm water, will sometimes give speedy relief. In addition to this, an infusion of marsh mallow, or parsley, may be given, though it is better to send for a physician, if the means above named are not successful.

DIABETES.

By diabetes we understand a condition in which there is an excess of urine passed. It is divided into two varieties, *diabetes insipidus* and *diabetes mellitus*. In the first the urine is clear, of low specific gravity, and tasteless.

In the second, it is of high specific gravity, and sweet to the taste. The first is not a very serious affection, though sometimes hard to manage; while the second is one of the most grave affections to which the human body is liable. I will give the symptoms of the two, but consider it useless to give the treatment, as it will have to be conducted by an experienced practitioner.

SYMPTOMS.—*Diabetes insipidus* may come on slowly and gradually, or its advent may be sudden. The patient's attention is directed first to the increased frequency of the calls to micturate, and especially by having to get up at night to relieve the bladder; then, that the urine is passed in large quantities at a time, and that it is very clear. At the same time he feels a sense of lassitude and languor, with pain in the back, and considerable thirst; the appetite is somewhat impaired, digestion imperfect, the skin soft and doughy, or dry and constricted. These symptoms may make their appearance so as to be marked in a couple of weeks, or they may be months in their development. Continuing, it may result in diabetes mellitus, or, by enfeebling the system, predispose to severe cachectic affections.

Diabetes mellitus may come on slowly or rapidly. In some cases months will have passed before the patient thinks his condition so serious as to demand the assistance of a physician; but in a majority, from four to eight weeks is sufficient for the full development of the affection. It comes on insidiously, without a pain or an ache, or any symptom that could be called disagreeable. The patient notices that he is losing flesh and strength every day, and is becoming so feeble that it is with difficulty that he is able to attend to his business, and at the same time that he eats nearly as much as usual. His attention is called to the frequent calls to pass water, and especially that he has to rise during the night, and that the amount in the vessel in the morning is very large. These symptoms continue to increase until the patient becomes very

feeble and thin in flesh, and is scarcely able to get about, being confined to the room the greater portion of the time—and still there is no suffering. The thirst is usually a very marked symptom, the patient having an almost constant desire for, and drinking large quantities of fluids.

As the disease progresses toward a fatal termination, we observe hectic fever in the afternoon, with night-sweats. The thirst still continues, and is frequently intense; but the appetite is much impaired and capricious. Sometimes phthisis sets in and runs its course rapidly; at others the patient is seized with a colliquative diarrhœa; and at others the kidneys fail to remove the necessary amount of urea, and the patient dies of uræmic coma.

BRIGHT'S DISEASE OF THE KIDNEYS.

This, also, is one of the most serious affections to which the human body is liable. It may occur at any age, but is most frequent in the young adult—say between the ages of fifteen and thirty-five years. It consists of granular degeneration of the secreting structure of the kidney, until at last it is entirely changed into a granular mass. One or both kidneys may be involved at a time; if but one, the disease will progress slowly; if both, it runs rapidly to a fatal termination.

In this disease albumen is passed with the urine, this being the characteristic feature. To determine the presence of this ingredient in the urine, put a small portion in a tin vessel and boil it; if albumen is present it will coagulate, and cause the urine to be cloudy. Then take a second portion, and add a few drops of nitric acid, and the same cloudiness will be observed.

SYMPTOMS.—There are no marked symptoms in the early stage of the disease to arrest the attention of the patient or the physician. It is noticed that the patient is gradually losing flesh and strength, and has a cachectic

appearance. The skin is dry and somewhat harsh, and the patient does not perspire on active exertion as usual. The bowels are constipated, or in some cases irregular, diarrhœa alternating with constipation; the appetite is variable, and there are more or less dyspeptic symptoms and headache. These symptoms and loss of strength at last becoming so marked, cause the patient to consult a physician, it may be months, or sometimes two or three years from the commencement of the indisposition. On close questioning, we will find that the patient has a weakness of the back, probably a sense of fullness in the loins, and his attention has been drawn to slight difficulty in passing urine, and some alterations in its physical properties.

As the disease progresses the patient becomes very feeble and cachectic, and frequently dropsical. The appetite is poor; digestion is feeble; the circulation weak; there is great emaciation; hectic fever appears in the evening, followed by night sweats; the patient dying of gradual marasmus, or some other affection that is set up owing to the enfeebled condition of the system; or uræmia occurs, and carries the patient off in a very short time. Occasionally, in the later stages, the urine is scanty and but slightly albuminous, so that there is some difficulty in determining the cause of the constitutional disturbance.

INCONTINENCE OF URINE.

Incontinence of urine should properly be considered after diseases of the bladder, but as we have just noticed retention, we may notice it here. Though not a very frequent affection, it is yet met with sufficiently often, and its symptoms are so disagreeable, as to merit careful study. It is of more frequent occurrence during childhood, and may be in these cases attributed to atony of the muscular fibers closing the neck of the bladder, or to an irritation of the nervous fibrillæ distributed to the mucous membrane of the bladder, which prevents normal distension

of that organ. In the adult it is frequently the result of injury, as in cases occurring after labor, or in consequence of long-continued disease of the urethra or bladder.

SYMPTOMS. — The symptoms of the affection vary in different cases; some being able to partially retain the urine, while others have no control over it at all. In the worst cases it continually dribbles away as it is passed into the bladder, the patient being unable to retain it. As the result of this state of affairs we find that the person is rendered filthy, and is debarred society on account of the disgusting urinary odor that he can not get rid of. There is also more or less irritation of the genital organs, and of the adjacent integument, sometimes very severe, resulting in deep foul-looking ulcers. In other cases, it is retained to the amount of a few drachms, and then commences to dribble away, unless the patient has an opportunity to void it. In other cases, the bladder being irritable, it is forcibly expelled, after having accumulated to a certain extent, the patient having no power to resist its expulsion. Incontinence of urine at night is a troublesome affection among children, and even the physician is frequently consulted about it; but, unlike the other, it usually arises from an irritability of the bladder, which, assuming control when the will is in abeyance, as during sleep, causes the discharge.

It is not necessary to specify remedies in this case, as they are of such a character that they could not be used with safety in domestic practice. In many cases the disease can be radically cured, in others it can not, but if it can not, there are appliances that will obviate the disagreeable consequences above named, and permit the sufferers to enjoy life like other persons.

INFLAMMATION OF THE BLADDER.

Acute inflammation of the urinary bladder is not of frequent occurrence. It is usually caused by injuries, or from irritating diuretics or injections, or from disease of

adjacent viscera, and more rarely from cold. It may be confined to the mucous coat, or may involve both it and the muscular, or extend to the peritoneum.

SYMPTOMS.—Acute cystitis commences with pain in the hypogastric region, of a sub-acute character, with soreness on pressure. There is a frequent desire to urinate, and these calls are attended with an aggravation of the suffering. From the sympathy existing between the bladder and the kidneys, the urinary secretion becomes scant and high-colored, and its increased acidity gives rise to a painful burning and scalding sensation when it is passed. When the disease has attained its greatest intensity, there is an almost constant desire to micturate, with an intense tenesmus, so that the patient is sometimes obliged to take hold of something with his hands when passing water, and will frequently bite his lips to keep from crying out with the severe suffering.

With the commencement of the pain the patient is usually seized with a chill or well-marked rigor, which is followed by febrile action, generally of a remittent character, and not very severe. This disease runs a course of from six to twelve days, and terminates in resolution, or the chronic form; or, in some rare cases, extending to the peritoneum and adjacent fascia, gives rise to the formation of a pelvic abscess.

TREATMENT.—In inflammation of the bladder we would employ the hot hip bath frequently, and for a considerable length of time; or, instead of this, we might use the hot hop fomentation. Internally, give a brisk cathartic of the compound powder of jalap, or the citrate of magnesia, and let the patient drink freely of an infusion of marsh mallow, mullein, or other mild diaphoretic. If there is fever, it will be well to give the special sedatives.

DISEASES OF THE NERVOUS SYSTEM.

The nervous system, as we have seen when considering its physiology, controls the entire body, though the proper performance of its function depends upon a proper quantity and quality of the blood. The brain is the organ of the mind, and furnishes the force by which a very large portion of the body is brought under the influence of the will. The upper portion of the brain is especially the organ of thought, and rather detracts than adds to the vitality of the person. The lower portion, or base of the brain, is associated in action with the spinal cord, and is eminently a vital part, the tenacity of life and power of living depending, to a very considerable extent, upon its development and perfect condition. While so serious an injury as the removal of a considerable portion of the front lobes of the brain may be recovered from, the slightest injury of the base of the brain or spinal cord will cause death.

INFLAMMATION OF THE BRAIN.

The brain and its membranes, occupying the cavity of the cranium, is subject to inflammation like all other structures. The disease may attack and be confined to the membranes of the brain, *cerebral meningitis*, or it may affect the substance of the brain itself—*cerebritis*; but very generally affects both to some extent. As it is impossible to decide during life whether the membranes or the substance of the brain is the seat of the disease, there is little use in trying to draw a distinction between the two. Phrenitis may be caused by cold, and other causes tending to produce irritation of the brain, the state of the blood, and by injuries. It is almost always acute; in fact, I doubt if we are able to recognize a chronic inflammation of this organ, unless it may be of the meninges, producing chronic hydrocephalus.

SYMPTOMS.—The invasion of the disease is indicated by

a sense of fullness and pain in the head, the integuments being suffused, and sometimes a marked sense of heat. Frequently the patient complains of dullness, with confusion of ideas, and forgetfulness, and unquiet sleep. Extreme irritability and fretfulness, with indisposition to sleep, and frequent startings during rest, the cry being sharp and quick, as if terrified, are the precursory symptoms in children. The disease is usually ushered in with a marked rigor or chill, continuing for an hour or two, or sometimes for nearly a day. Following this, there is in most cases high febrile reaction, the skin is hot and flushed, the pulse frequent and hard, tongue coated white, bowels constipated, and urine scanty and high-colored. The head is turgid and hot, the eyes more prominent and suffused, the pupils contracted and fixed, and a deep-seated, heavy, pulsating, and tensive pain in the head.

As the disease progresses, the patient becomes more irritable and restless, the pain in the head increases, there is intolerance of light, ringing in the ears, and intolerance of sound, sleeplessness and delirium. Up to the third or fourth day the fever is usually continuous, though sometimes there is a slight remission in the forenoon, and the head symptoms increase or continue without abatement. A marked change is now observed, the acute sensibility gives way to torpor, and the delirium becomes low and muttering, or is replaced by coma. The pulse becomes fuller, softer or slow, or in some cases very hard and frequent. The head and trunk are still hot, the face turgid and of a deeper color, or in some cases blanched and contracted, the pupils dilated, the extremities cool, respiration difficult and sometimes stertorous, and more or less involuntary movement and starting of the tendons. The coma gradually becomes deeper, and the insensibility more marked; all the functions are feebly performed, the patient lies on his back, slips down to the foot of the bed, grasps at imaginary objects, and thus slowly sinks. Ac-

according to Copland: "In some cases, particularly those in which the cerebral substance is early and generally inflamed and turgid, instead of phrenitic delirium, an apoplectic sopor, often preceded by convulsions, quickly supervenes; with a slow pulse, stertorous, slow or labored breathing, turgid or bloated countenance, startings of the tendons, involuntary evacuations, torpor of the senses, and flaccidity of the limbs." Here the first stage is very short, or not noticed, and the disease passes rapidly to a fatal termination.

In children we frequently find inflammation of the brain, making its appearance during the progress of other diseases. The head becomes hot, the face turgid, the pupils contracted, with great restlessness and constant movement of the head. Though not very marked on account of age, the child is evidently delirious, and the frequent movement of the head, and putting the hands up to it, shows that it suffers pain. In other cases, the acute stage has passed without notice, the face is blanched and contracted, or white and puffy; the pulse is small and very frequent, the extremities cool, bowels loose, the operations being unnatural and offensive; there is continued movement of the head and restlessness, or a deep stupor or coma. Sometimes the symptoms will continue for three or four days, but at other times the disease will terminate fatally within forty-eight hours.

TREATMENT.—In the stage of active determination in the adult, we would commence the treatment by the administration of a brisk cathartic, as compound powder of jalap and senna and bi-tartrate of potash, in doses of one drachm of each, in a reasonable time, if it should not act. In mild cases, the hot mustard foot-bath may be thoroughly used; but in the more severe, I prefer the warm bath, and the vapor bath in addition. With these we would use a diaphoretic, as an infusion of eupatorium, salvia, etc.; or of the essential tincture of asclepias, serpentaria, eupatorium, or similar remedies. To prevent

determination to the head I use gelseminum, giving it in doses of from twenty to forty drops of the tincture every two or three hours until its full influence upon the system is obtained. If there are specific remedies, I should name this as one, its effects being most marked in these cases. Great care should be used, however, in its employment when the stage of excitement is passing into that of prostration, as it may so paralyze the brain as to induce fatal congestion. In the second stage of the disease, with coma and dilatation of the pupils, it must not be used.

In many cases, if we obtain the action of a cathartic, and use the hot foot bath or general bath, the diaphoretics named will induce sufficient sedation without other means. If, however, the fever should run high, there being much heat of the head, I would associate with them the special sedatives, tincture of veratrum and aconite, in doses of one drop of each, largely diluted with water, every hour. If the bowels are loose, as is sometimes the case, the general bath will have to be rendered stimulant in order to get the necessary amount of derivation, cathartics being contra-indicated. In some cases the stomach is irritable, and nausea and vomiting so constant as to prevent the administration of the proper remedies; here I should give a thorough emetic, and expect the best results from it. The emetic may also be used in cases where we have reason to suppose that the stomach is loaded with crude ingesta, or with vitiated secretions. As soon as the bowels are moved, and sometimes before, we might commence the use of the alkaline diuretics, largely diluted.

In addition to the means of derivation already named, we find it advantageous to apply cups to the neck, and even to the entire length of the spine; in some cases they should be thoroughly drawn and scarified. Some use a sinapism to the nape of the neck, but it is too feeble; if it is thought preferable, a blister may be used instead of the cups. Sometimes we find it advisable to use stimulants to the entire lower extremities, as flannel cloths wrung out

of hot mustard water. The head must be kept cool, either by the direct application of cold, or the use of evaporating lotions. I prefer warm water applied to the head with a sponge, and evaporation favored by fanning; sometimes the water may be used quite warm if feeling grateful to the patient, and allaying much of the irritability.

When the disease has passed into the second stage, our treatment will have to be changed, everything looking to depletion being discarded. A stimulant purgative, as podophyllin with capsicum and extract of hyoscyamus to the extent of producing one or two stools daily, is useful. Stimulant applications to the extremities are necessary, and counter-irritation may be applied the entire length of the spine. I use dry cups to the spine, followed by a sinapism, and wet cups to the nape of the neck. When using the cups and scarificator, it is not our object to remove the blood, hence the cupping-glass is never applied after scarification. The warm water applications to the head may still be employed if there is heat, or we may add a portion of tincture of camphor to the water employed to render it stimulating; or in some cases a weak tincture of camphor may be used alone. It should always be borne in mind that there is as much danger in keeping the head too cool in this stage as in letting it remain too warm. Carbonate of ammonia and brandy are the only internal medicines that I find any use for, unless in some cases I give quinine, though this usually comes in at a later stage. To an adult the dose would be from half to one tablespoonful every hour or two hours; to a child two years of age about one teaspoonful. The urinary secretion should be carefully watched, for if suppression of urine should occur, or even retention, our patient will live but a short time. If the secretion is deficient, equal parts of sweet spirits of nitre and essence of juniper will prove useful, or a small quantity of turpentine may be used with the nitre.

Convalescents from this stage of phrenitis must be care-

fully watched. As soon as consciousness returns, we may commence the administration of quinine, about six grains in the forenoon, to arrest the obscure remittent fever that is so generally attendant. If there are objections to continuing the brandy, we will find the nux vomica and hydrastin, as heretofore recommended, efficient substitutes. No continued mental exertion should be allowed, and excitement should be studiously avoided, in other respects the convalescence must be managed as in other severe diseases.

SPINAL MENINGITIS.

Inflammation of the meninges of the spinal column is not an uncommon disease, though sometimes from the obscurity of its symptoms it may be mistaken for other affections. It occurs in two forms, as a distinct sporadic inflammation, and as an epidemic or endemic fever, which owes its origin to the spinal cord. It is in the last named cases that mistakes in diagnosis are most usually made. The causes of this affection are those which give rise to other inflammations, as cold, sudden changes of temperature, injuries, and especially a sudden chilling of the surface after active exertion. It occurs most frequently in the young and vigorous, and is very rare after middle life.

SYMPTOMS.—Spinal meningitis usually commences with a well marked chill, lasting for several hours, though sometimes with a severe rigor of considerable duration. I have seen cases in which the chill was of twenty-four hours' duration, the latter part of it being alternated with flushes of heat. Following this, there is marked febrile reaction, with hot, dry skin, hard and frequent pulse, tongue coated white, the edges and tip being red, constipation of the bowels, and scanty and high-colored urine. The patient complains greatly of pain in the back, which is so increased on movement that he dislikes to change his position for any purpose; though in some cases, when not so severe, they are constantly shifting their position to

give them ease. By the second or third day the fever usually becomes high, the pulse running some thirty or forty beats higher than in health, the skin being very dry and constricted, and the irritability and restlessness marked. These symptoms may be so prominent as to completely overshadow the symptoms of spinal inflammation, the patient not even complaining of the pain, unless his attention is directly called to it. It will be noticed, however, that the slightest movement or changing the position of the body gives rise to pain, and when the attention is thus drawn to it the soreness of the spine will be continually noticed. Deep pressure usually elicits tenderness, and sometimes the sensibility is so exquisite that the patient cannot bear to be touched.

As the disease progresses, the fever assumes an irritative or typhoid type. The tongue soon becomes brown, and sordes appear on the teeth. Typhomania occurs about the sixth or seventh day, and is frequently attended with looseness of the bowels. Sometimes there is marked irritation of the brain and delirium, at others a stupor which soon passes into deep coma. As the local disease progresses, it is found that the lower extremities are subject to involuntary movement, and that the patient has but partial command over them; and that the bladder and rectum is evacuated without the knowledge of the patient, or there is retention of urine without the power of discharging it. At last, in severe cases, paralysis of the part below the seat of inflammation is complete. The fever is usually continued, though sometimes remittent, and is invariably ataxic, presenting well-marked typhoid symptoms, with the exception of diarrhœa, by the tenth to the twelfth day. It is usually protracted, lasting from two to eight or ten weeks.

TREATMENT.—In many cases it will be advantageous to commence the treatment with an emetic, especially if, as in some cases, there are symptoms of morbid accumulations or nausea. Following this, I should use the warm

bath for an hour or two, or the vapor bath; or if the skin was hot, I should not hesitate to resort to the wet sheet pack. The special sedatives may be given from the first, tinctures of aconite and veratrum being the agents selected, and given in small doses and frequently repeated, as heretofore recommended; tincture of gelseminum may be used in full doses until its specific influence is produced, as its action in preventing determination to the nervous centers is more marked than any other agent. Associated with these remedies, we would direct wet cups to the spine, followed by hot fomentations of hops or stramonium, or in some cases rubefacient applications, as mustard or the stimulating liniments.

We will usually have to continue the above measures for two or three days, and sometimes longer, before any very perceptible influence is produced. We may add to the treatment named, a solution of the alkaline diuretics about this time, and may also commence the administration of quinine. The treatment would now be the special sedatives to the extent of controlling the pulse. The tincture of gelseminum in small doses, with a diaphoretic, as the asclepias, a solution of the alkaline diuretics, and quinine and hydrastin in the forenoon, the dose being proportioned to the age and condition of the patient. The frequent use of the sponge bath gives the patient great relief, and aids the action of our remedies. The bowels should be kept in a soluble condition by the use of some mild cathartic; I prefer podophyllin thoroughly triturated with twenty times its weight of white sugar, and with the addition of cloves or ginger to prevent its griping. If the patient seems much debilitated, as is frequently the case, brandy or rye whisky should be used to such an extent as to give the necessary stimulation, but not to overcome the effects of the sedatives.

Quinine has a very singular influence in some cases; if given in large doses it produces marked sedation and exhaustion, and if continued this way for a few days, it may

be followed by an irritative fever, with sharp, quick pulse and dry skin. For an adult, from six to ten grains daily is as much as will generally be of advantage; and a child of ten years may usually take from four to six grains.

EPILEPSY.

Epilepsy is one of the most serious of the diseases of the nervous system, not because of its fatality, for it runs a very chronic course; but because there is no tendency to spontaneous arrest, and medicine has heretofore had very little influence upon it. One of the most distressing features of the disease is, that it gradually impairs the mind, until the person, once bright and of sound mind, becomes a driveling idiot or a raving maniac. The disease usually commences in childhood, most frequently between the ages of six and twelve.

The causes of epilepsy are various, and not very well understood. They may be divided into *intrinsic* and *extrinsic*; in the first case existing in the cerebro-spinal nervous centers, or their immediate surroundings; and in the second existing at a distance, and affecting the spinal cord through the nerves. Of the first, we may instance inflammation and determination of the blood to the cerebro-spinal centers, disease of the meninges and of the bowels, and injuries of the bones, giving rise to compression, or continued irritation, as by the presence of a spicula pressing the nerve substance. Derangements of the blood may sometimes give rise to epilepsy, as in the retention of the solids of the urine, and other changes that we are not cognizant of. By an *extrinsic* cause, we understand one in which the irritation being set up at a distance, is propagated along the nerve trunks to the spinal cord, where, setting up an irritation, it manifests itself through the excitomotor system of nerves. The most simple instance of this action is witnessed in the case of cramps of the muscles of the extremities from irritation of the intestinal

canal, as in cholera morbus, and in the case of infantile convulsions from teething, or from gastro-intestinal irritation. Epilepsy may in this way arise from irritation of the stomach from crude, indigestible food, from worms, from irritation of the bowels, the kidneys, bladder, or genital organs. The cause being sufficient to set the disease going, may disappear entirely in a few days or weeks, and yet the epileptic attacks continue. It would seem that when this abnormal action is once set up, the tendency to its continuance is the same as in healthy functions; but why this is we know not, and neither can we give any probable theory.

As regards the *pathology* of epilepsy, we are much in the dark. In some cases it would seem to be dependent on a too free circulation of blood in the nervous centers—determination of blood; in other cases, upon a sluggish circulation—congestion; and in still others, upon some defect in nutrition. There are cases in which it is very manifest that the condition of the blood is the exciting cause of the epileptiform seizure, though we must still imagine an unnatural irritability of the nerve centers to be so impressed. Thus, I have seen cases in which every convulsion was preceded by deficient secretion of urine; and so long as this secretion could be maintained in the normal condition, so long would the patient be free from its seizure. Cases in which the disease is dependent upon the amount and character of the menstrual discharge, have come under the notice of almost every one. Experience, however, has proven to me, that epilepsy is eminently a disease of debility of the nervous system, even in cases in which there seems to be the most evident symptoms of irritation and determination of blood.

Dr. Radcliffe has written a most interesting paper on the pathology of convulsions, and draws the following conclusions: "1. The epileptic and epileptiform paroxysm is not unfrequently preceded by signs of defective respiration. 2d. It is usually accompanied by a state of

unmistakable suffocation. 3d. The condition of respiration during convulsion is one which supports the notion that the convulsion is connected with depressed and not with exalted vital action. 4th. In the chronic form of convulsive disorders, the inter-paroxysmal condition is usually marked by evident signs of feeble circulation. 5th. The epileptic and epileptiform paroxysm is usually if not invariably, preceded by signs of failure in the circulation. 6th. In the fully-developed paroxysm, the pulse is sometimes aroused to a considerable degree of activity, not because the arteries are receiving a largely-increased supply of *red* blood, but because they are then laboring under a load of *black* blood, as they are found to labor during suffocation. 7th. Convulsion is never coincident with a state of active febrile excitement of the circulation. 8th. Epileptiform convulsion is a direct consequence of sudden and copious loss of blood. 9th. The condition of the circulation during convulsion is one which supports the notion that the convulsion is connected with depressed and not with exalted vital action."

It is of but little use to try to study the original cause in many cases of epilepsy; for, as has been remarked, it has probably passed away months before our examination. There is always, however, an exciting cause, which it is necessary to determine, if possible, as upon its removal the success of our treatment will in great measure depend. I have known it to be a failure of excretion, an imperfection in digestion, derangement of the menstrual function, excessive mental emotion, and not unfrequently excessive sexual excitement.

SYMPTOMS.—In some cases there are brief, premonitory symptoms of the approaching seizure, and rarely the patient has notice of it for hours. The sensations differ in different cases; sometimes a sense of weight and oppression in the head, with giddiness and loss of voluntary power; in others, a coldness passing from the feet upwards, and terminating in the epileptic seizure when it

reaches the head. In the more protracted cases there is usually a marked dullness and hebetude noticed by the friends, and the patient feels a loss of consciousness that is very unpleasant.

In an attack of epilepsy the patient becomes suddenly unconscious and falls to the floor, or wherever he may be situated. Involuntary movement from spasmodic contraction and relaxation is characteristic of the disease, and may be very intense or mild. If severe, the limbs are thrown in various positions, the trunk contorted, and the features remarkably changed. First one group of muscles contract, and then another, so that parts are kept in constant movement. The lower jaw and tongue being also affected, we find that usually the latter organ is severely bitten if means are not taken to avoid it. The patient usually froths at the mouth; respiration is normal in frequency, and the pulse but little changed, except that it is smaller and feebler. The countenance is not only distorted by the convulsion, but in some cases is turgid and purplish, or almost black. Frequently the urine, and sometimes the fæces are passed involuntarily during its continuance.

The duration of the epileptic seizure is very variable, sometimes lasting but a few seconds, and at others for fifteen or twenty minutes. The patient may have but one attack at a time, or they may succeed one another at short intervals until quite a large number has passed. When the attack ceases, the patient becomes completely relaxed, and usually falls into a deep, comatose sleep, from which it is almost impossible to arouse him for an hour or two. The frequency of their recurrence varies in different cases; in some they do not appear oftener than once a month, or even less frequently; in others, every week, or almost every day. Sometimes they are so distinctly periodic that the return can be closely calculated; but at others they are very erratic in their course. In many cases there are slight seizures during the intervals between

the principal attacks; in these the patient seems to lose consciousness but for a moment, and stares vacantly at persons present; passing off, he has no recollection of it, nor of the epileptic attack.

TREATMENT.—Whilst a considerable number of cases of epilepsy can be cured, a large number can not. Much depends upon the causes inducing the disease, the time it has continued, and the condition of the various structures of the body. Possibly there is no affection that requires more care to determine an appropriate treatment for a cure than this; hence, I would advise that a physician be consulted, who has had great experience in its management, and that domestic treatment should be avoided.

The treatment for an epileptic seizure is usually very simple. Place the patient in a horizontal position, in such manner that he will not be able to injure himself. So arrange things that there will be free circulation of air; and to prevent congestion, loosen the clothing around the neck and waist. This is all that is necessary in the majority of cases; but if the convulsion continues long, give the remedies named for convulsions.

CONVULSIONS.

Convulsions occur far more frequently during childhood than after puberty, though they may be occasionally noticed at all ages. The causes giving rise to them are various. Sometimes they are produced by disease of the brain and spinal cord, as in determination, inflammation, and some obscure structural lesions; at others they arise from an external irritation, it being transmitted to the spinal cord, and giving rise to excited reflex action. According to Dr. Marshall Hall, convulsions are dependent upon irritation of the *true* spinal system, and though this occurs in some cases from causes acting directly upon the nervous system, it more frequently depends upon an irritation of some distant part, transmitted to the spinal cord

through the nerves. Thus, we find convulsions arising in this way during dentition, from crude or acrid ingesta, from irritation of the stomach or bowels, from the irritation produced by worms, and from inflammation of internal organs, or disease of the surface, attended with great irritation and pain.

SYMPTOMS.—If convulsions occur during disease, they are generally preceded by tolerably well marked symptoms, by which the close observer may anticipate their approach; and though not always constant, it is well to give them due consideration. The most marked of these is a sudden jerking, involuntary movement of the extremities, and quick, grasping movement of the hands. This will be observed as well when the child sleeps as when awake, and is sometimes increased by motion. Usually, the child sleeps with its eyes partly open, and we observe that the globe of the eye is drawn upward and rolled about, and this involuntary movement of the eye may be frequently noticed when awake. With these symptoms there may be excitement of the nervous system, manifested by restlessness, fits of crying in children, and sleeplessness; or, we may have the reverse, the patient being dull, impassible and somnolent.

The attack is always sudden, the patient losing consciousness, and being to a great extent insensible. The convulsion is usually very marked, but in some cases we will find it slight or entirely absent, the patient being rigid and remaining in one position. Respiration is labored, in many cases very markedly so, and in these the countenance is turgid and purple, and the features much distorted. The pulse is very frequent and small, or it is soft, feeble and small, and but little increased in frequency. In the severer cases, deglutition is almost impossible, and from the falling backward of the tongue respiration is snoring. These symptoms may continue for a moment or two to fifteen minutes or half an hour, in the milder cases terminating in a return of consciousness, but the severer in a

deep sopor, from which the patient can not be aroused. One convulsion may terminate the attack, but in many cases one succeeds another for from one to twenty-four hours. The interval between the spasms is frequently marked by nothing more than a relaxation of the entire system, and a restoration of the power of deglutition, the patient being in a semi-comatose condition, and totally unconscious. Children having convulsions once, are usually more liable to them than others, and they will frequently come on from slight causes.

TREATMENT.—Our primary object is to arrest the spasmodic movement which is so alarming to the friends, and, no matter how often seen, to some extent so to the practitioner. Calmness and decision are very important requisites in this case, as all around the patient is excitement, and a hundred expedients to benefit the sufferer are proposed. Usually, we would give our patient the compound tincture of lobelia and capsicum, in doses of a teaspoonful every five minutes to an adult, and one-fourth of a teaspoonful as frequently to a child. We can usually administer this during the paroxysm by carefully pouring it into the mouth, and allowing it to pass down the throat gradually. This should be continued until the convulsion passes off, nausea being generally induced; or, if we have reason to suspect crude ingesta, we should carry it to free emesis; or, instead, give a sufficient quantity of ipecac to evacuate the stomach. If the medicine can not be given by mouth, we would use it as an enema, combining two or three times the quantity with the necessary amount of water, and repeating it as occasion requires. The tincture of gelseminum is the next and most efficient agent, and may be given in doses of from half to one teaspoonful of the common tincture to an adult, or from ten to fifteen drops to a child two years old. It may be repeated at intervals of ten or fifteen minutes, or as occasion requires. Tincture of asafoetida, or sulphuric æther, sometimes answers a good purpose, and occasionally valerian may be

added to the combination for its arrest. These remedies should not only be given during the convulsion, but afterward to prevent its recurrence.

Bathing the feet in hot mustard water for ten or fifteen minutes, or the use of the hot sitz bath, is frequently attended with benefit. Occasionally sinapisms to the feet or ankles are applied, or to the bowels, if there seems to be heat or irritation. If the face is flushed, and the head hot, we would use cold applications, and in some cases cups to the neck and spine. There are cases, as, for instance, when the skin is hot and burning, that I would prefer the wet sheet pack to all other medication.

If the symptoms of convulsions are noticed, we may almost always prevent their occurrence by the administration of small doses of tincture of gelseminum. So certain is it in its action in doses of from six to ten drops every half hour, or two hours, to a child two years old, that I leave it in cases of threatened convulsions, with the greatest certainty that it will prevent their occurrence; and in families in my practice where there is a tendency to convulsions during childhood, the remedy is kept constantly on hand; not only is it a good prophylactic before the convulsion, but it is also one of our best remedies to prevent their recurrence when once arrested. Just as soon, however, as the first convulsion has passed off, we endeavor to learn its cause, so that by its removal we may avoid any danger of its recurrence. Thus, if from crude ingesta, we give an emetic; if, from irritation of the bowels, we use the appropriate means to relieve it; and if from arrested secretions, these should be re-established.

HYDROPHOBIA.

Rabies is a disease of great antiquity, and has been described by most writers on medicine from the earliest ages. It has its origin in the canine and feline animals, but may be propagated to all genera and species.

How the disease originates, or what is the character of the poison, is beyond our knowledge. Some contend that from its first commencement it has been propagated by contagion, while others reason that the causes which produced the first case, may be again set in action and reproduce the disease. These suppose that protracted thirst or hunger, extreme heat, violent excitement or anger, the sexual heat, etc., variously associated, will develop the malady independently of contagion.

When once developed, it is transmitted from one animal to another, and to the human family, by a specific animal poison found in the saliva, and which is usually introduced into the blood, through a wound made by the teeth; though like all other animal poisons, all that is necessary is, that it shall be brought in contact with an abraded surface.

As regards the physical properties or character of this poison, nothing is known, and neither has it been determined what part secretes the poison, further than that it is furnished by the glands connected with the mouth. Some writers contend that it is not a disease of the blood, and urge as evidence the long period that sometimes elapses from the inoculation before the disease is developed.

They therefore urge that it must be the nervous system that is affected, the phenomena being those of a nervous malady of the most intense form.

As regards the pathology of the disease, we may assume that the poison of rabies absorbed into the system, gives rise to a peculiar irritation of the nervous system, more especially marked in the true spinal system. The symptoms all point to the medulla oblongata and spinal cord as the seat of the disease, and the post-mortem examination shows these parts to have been subject to severe irritation and vascular excitement.

The appearance of hydrophobia in the dog is indicated by a change in his disposition, usually exhibiting a

marked antipathy to other animals, and rarely becoming attached to those to whom he was formerly indifferent. He seems also to have changed his habits, picking up straws, rags or any small objects, and licking cold surfaces, as stone, iron, etc. He becomes morose and sullen in his disposition, becomes lonely, has a haggard and suspicious look, and is constantly thirsty; respiration soon becomes difficult, and saliva flows from the mouth, and forms a viscid foam, and he shows great irritability and a disposition to snap at and bite other animals, though he may still obey the voice of his master. At last he becomes uncontrollable, and flies at every creature he meets, and having no fear, he is not intimidated by holding or striking at him with a whip or stick, but is rendered more savage. At no period is there any dread of water, but the animal still exhibits strong evidences of thirst, and runs to it with avidity, and all other animals, with sometimes the exception of the horse, drink with ease. The disease having continued for several days, the animal is at length exhausted, and dies in convulsions.

SYMPTOMS.—The period of incubation is seldom shorter than from thirty to forty days, or may be postponed from one to two years. The wound seems to heal as kindly as it does in other cases, and usually no unpleasant sensation is experienced in it. Sometimes there is a feeling of constriction in the cicatrix, or slight shooting pain, but we are inclined to attribute this, as well as the quick pulse and constitutional symptoms sometimes met with, to the effect on the mind of the patient, rather than to the influence of the poison.

The invasion of the disease is usually marked by a recurrence of pain at the seat of the injury, which shoots upward in the course of the nerves, occasionally to the epigastrium or præcordia. Not only is there pain, but the cicatrix becomes of a dark livid red, is irritable, tumid, and sometimes surrounded by small phlyctenulæ, containing a bluish fluid, or in rare cases the cicatrix

opens and discharges a watery or icherous fluid. The patient is now very anxious and restless, and complains of drowsiness, chilliness, flushes of heat, and sense of constriction of the throat, and stiffness of the parts concerned in deglutition. The act of swallowing, especially fluids, is now attended with pain and distress, and by spasmodic action of the muscles engaged, so that frequently they are forcibly ejected from the mouth. The difficulty of swallowing rapidly increases, and the patient fears to make the attempt, and the sight of fluids occasions the most distressing spasms of the throat, followed by sobbing, tremor, forcible respiration and exhaustion.

The sufferings now become intense; the mouth is dry, parched and clammy, a frothy saliva being secreted, and occasionally forcibly expelled during the paroxysms; the thirst is intense, though the sufferer is not only unable to take fluids, but the sight or sound of them gives rise to uncontrollable convulsions; the countenance is haggard and anxious, the brow contracted, the eyes staring and wild, and startling in their expression, and the angles of the mouth retracted; respiration is hurried, laborious, and attended with dryness and constriction of the air passages; and the sensibility becomes so exalted that the slightest touch, or a breath of cold air striking the surface of the body, will occasion a paroxysm.

The mind of the sufferer is usually clear in the absence of the paroxysms, but when they are on, he has the rabid impulse of biting or tearing to pieces whatever comes in his way. These symptoms continuing, the patient becomes gradually exhausted, the pulse becomes small and feeble, respiration hurried and difficult, and he dies suddenly during a violent exacerbation. The attack may last from two days to a week, or in some rare cases the symptoms become ameliorated, and quietly wear themselves out in the course of two, three or four weeks. In these last cases the patient rarely recovers completely, but has occasional slight returns of the original symptoms.

TREATMENT.—Immediately on the receipt of the injury, it is recommended to wash the wound or wipe it dry, and suck it with the mouth for five or ten minutes. Or the part may be immediately excised, or a ligature applied between it and the trunk, if of one of the extremities, to prevent the poison from gaining entrance into the system; this will be done before a physician can be seen. When the case presents itself to us, we may excise the part bitten, or apply a cup to it, draining it well, or we may cauterize it freely. I prefer the latter practice, and use a saturated solution of chloride of zinc, bringing it in contact with the whole abraded surface. A deep eschar is formed, which does not slough for several days, and when thrown off the wound suppurates freely. Three cases were thus treated by me in 1857, that had been bitten by a dog that communicated the poison to several animals which died of hydrophobia; the cauterization was very thorough and deep, and not more than half an hour after the injury; not one of the cases had any symptoms of the disease. A fourth case occurred in 1859, and a fifth in 1862, which were treated in the same manner and with the same result, but in neither of these was the evidence positive that the dog inflicting the bite was rabid. No internal medicines were used in any case.

When hydrophobia is fully developed, we are at a loss how to treat the patient; some writers have recommended the employment of lobelia to keep up continuous nausea; others to give scutellaria in infusion in as large doses as the patient can bear; and others the narcotics, as the *cannabis indica*, belladonna, stramonium, hydrocyanic acid, etc. Each has been employed thoroughly, and though they may have so mitigated the symptoms as to have led the attendant to suppose that under more favorable circumstances they would have been followed by success, yet we have no evidence that a single case has been cured. Evacuents have not only failed to accomplish any good result, but have undoubtedly

hastened death. The anagallis purpura has been highly extolled, and cases reported cured, but we are not told whether it was used as a prophylactic previous to the full development of the disease, or afterward, and as will be noticed, very much depends upon this. If I had to adopt a treatment in these cases, it would be the continuous hot bath, quinine in large doses, and chloroform by inhalation.

DELIRIUM TREMENS.

Delirium tremens, in a very large majority of cases, is the result of intemperance in the use of intoxicating liquors, and usually follows a protracted debauch. It may be produced by the habitual use of opium, and in rare cases it may result from excessive emotional excitement in persons of feeble health. As a general rule it occurs in persons who are habitually intemperate, though they may never have been so intoxicated as to attract much attention. It is claimed by some that delirium tremens is not the result of excessive excitement, but that it makes its appearance when the person has ceased to drink, either from inability of the stomach to receive it, or because they desire to sober up. Hence they say that it is the result of the withdrawal of the stimulant at a time when the system is accustomed to its use. This would be good reasoning, were it not for the fact that in very many cases it comes on while the person is still drinking to excess. How, then, will we harmonize these opinions, or rather these facts? There is only one way, and that is that there is a delirium of drunkenness following the debauch immediately, and another that makes its appearance in from two to seven days afterward. It may be that this accounts for the great difference in the treatment of the disease.

SYMPTOMS.—Delirium tremens is usually announced by a marked vigilance and entire sleeplessness, though the person's mind may as yet be entirely clear, and free from the vagaries that are soon to make their appearance. We find that there is great irritation of the stomach, frequently

thirst, sometimes nausea, and in all cases an entire loss of appetite, the patient having usually taken but little if any food for several days. The pulse is generally slow, and the hands and feet are cold and clammy; he is anxious and dejected, sighs frequently, and complains of oppression about the præcordia. These symptoms sometimes continue for two or three days, at others for but a few hours. The restlessness and vigilance of the patient are now increased, and the countenance has a peculiarly wild expression; mental delusions now occur, at first at intervals, and easily displaced by reasoning with him, but at last becoming fixed and constant, he sees curious shapes and beings, snakes, devils, dragons, assassins, etc., and is in continual fear of his life, or of future retribution. It is singular that these visions are so generally frightful, and strike the poor sufferer with mortal terror, and yet the cases are very rare where it is otherwise. He sees them on his bed, peeping and laughing at him from behind the furniture, grasping at him from the air, climbing on his body, and it is impossible to displace these fancies. Occasionally they take human shapes, but are still objects of terror, as murderers, thieves, etc., and he tries various means to escape from their clutches, even in some cases to jumping out of the window. The intensity of this delirium varies in different cases, the patient being managed with ease in some, but in others requiring to be held down in bed to prevent him from injuring himself and others. During this time the skin is harsh and dry, the pulse frequent and small, the tongue dry and furred, and the appetite entirely lost. The secretions are all diminished, the patient is feeble, and there is an unnatural tremor of the muscles. Continuing in this way for a variable period, it may terminate by a subsidence of the excitement, and by a deep sleep, from which the patient awakes free from these morbid fancies. In other cases the delirium becomes more and more severe, until finally the system sinks under it, the patient dying from the fourth to the twelfth day.

TREATMENT.—When the disease is fully developed, we may occasionally succeed with opium and stimulants, or with either of the two, though I do not like the practice. Dr. I. G. Jones gave brandy in large quantity, with Hoffman's anodyne, and contended that it was not only successful, but the most successful practice known. Opium and stimulants have been employed by many physicians with moderate success, though the treatment will not reach difficult cases. I have used the combination of gelsemium, opium, and veratrum with good success in cases not very severe, though it fails in the worst form of the disease. Tincture of digitalis has been very highly recommended, and from my experience with it, I am inclined to believe it one of our best remedies. It is given in very large doses, from one drachm to half an ounce, every three or four hours, until the patient becomes quiet and sleeps.

The warm bath is usually very efficient; and I have known patients to go to sleep in the bath, who had been beyond all control, except by force. It may be associated with the other means named. If there is nausea, and especially if the remedies given are thrown up, an emetic should be administered, and the stomach thoroughly evacuated. In some cases it is well to evacuate the bowels with the compound podophyllin pill, and the secretion of the skin may be started by the administration of tincture of asclepias, with carbonate of ammonia. I have cured cases of delirium tremens with the warm bath, podophyllin pill, and asclepias and carbonate of ammonia, when opium and stimulants had failed. In very severe cases, we would place the patient under the influence of chloroform, and continue it until natural sleep was the result. When other remedies fail, we are enabled to manage the disease with anæsthetics, until we can get the desired action from medicines. As the excitement is subdued, it becomes important to give the patient food in such form that it may be appropriated by the enfeebled

digestive organs; animal broths and milk are usually best adapted to the case, and should be given at first at regular intervals if the patient has no appetite, as is generally the case. Very frequently the restlessness depends more upon a lack of nutritive material, and consequent exhaustion, than it does upon disease; and as soon as the stomach appropriates the proper amount of nourishment, the excitement subsides and sleep results. Quinine and hydrastin may be given for the purpose of stimulating the stomach and inducing a desire for food, and in the later stages of the disease is very successful.

NEURALGIA.

Neuralgia is sometimes preceded by a sense of formication, or numbness, and sometimes by soreness and stiffness. The pain usually comes on gradually, is at first obtuse and aching, but as it continues becomes sharp, lancinating, darting and lacerating. Sometimes it seems to be confined to the one spot; but at others it shoots along the course of the nerve, either in the direction of the trunk, or the extremities, or seems to dart through the part in a direction opposite to the course of the nerves. The pain is usually very intense; so much so, sometimes, that the patient screams with the agony, and in very severe cases becomes unconscious or maniacal from the intensity of the suffering. Occasionally we notice other disturbances of the part, as twitchings and other involuntary muscular movements, and derangements of function, and, in rare cases, seeming paralysis. The constitutional disturbance varies greatly in different cases, depending upon the severity of the disease, and its duration. In common cases, when it has continued for twenty-four hours or more, we find an excitement of the pulse, dry skin, constipated bowels, coated tongue and loss of appetite, the patient complaining that the extreme suffering has made him sick. In protracted cases the health suffers very

much, the patient becoming feeble and anæmic, and troubled with various functional derangements.

TREATMENT.—The treatment of neuralgia should be both general and local; and contrary to the generally-established practice, we find that the first is far more successful than the last. In many such cases, and especially if indicated by the condition of the stomach, we find that an emetic will give the quickest and most decided relief, and will pave the way for a speedy cure. I use the compound powder of lobelia and capsicum in infusion, and give it so that a couple of hours will be occupied in its action. The patient should have his feet bathed in hot mustard water, and be covered warmly in bed, and take freely of some diaphoretic infusion, as of equal parts of essential tincture of asclepias, and compound tincture of serpentaria, in doses of a teaspoonful every hour, or of equal parts of diaphoretic powder and asclepin, in doses of five grains. Free perspiration is in this way induced, and the patient often falls into an easy sleep, the first he has had for several days. In other cases we may accomplish the same object by the use of the wet sheet pack, and the internal use of cold water, and an alkaline diuretic.

The local applications made use of vary greatly, being sedative, stimulant, narcotic, emollient, etc., according to the whim of the prescriber. Chloroform and aconite are probably the most efficient agents we can use when the neuralgia is superficial, as in the case of the face.

I use the agents combined in equal parts, and to such an extent as to produce the peculiar numbness of the tongue, characteristic of the action of aconite upon the system. If we desire a stimulant influence in addition, we may add an equal quantity of oil of sassafras and alcohol. If a deep-seated part is affected, as in the case of the sciatic nerve, we will find *firing*, or the application of a hot iron to the surface in the course of the nerve, one of the best applications. The strong am-

monia liniment applied on flannel, so as nearly to blister the part, is sometimes very successful. The extract of tobacco has been successfully used as a local application, as has also the emplastrum belladonnæ. The irritating plaster continued until it produces suppuration, is very good treatment in some chronic cases.

HYPOCHONDRIASIS.

Among the most troublesome cases that come under the physician's care, are those which may be classed under the present head; though they may vary greatly in their symptoms, there is that common to all, which gives them a distinctive character.

Copeland's definition, "Chronic indigestion, with languor, flatulency, dejection of mind and fear, arising from inadequate causes; general exaltation of sensibility, a rapid succession of morbid phenomena, simulating numerous diseases, or otherwise a real but variable state of suffering, exaggerated by the morbid sensibility and fears of the patient, with unsteadiness or variability of purpose, and distressing anxiety respecting his complaints." This in a few words expresses a condition in which, in addition to a variable amount of physical disease, we have a marked lesion of innervation, and to some extent of the mind. Some authorities class it with insanity, and there are cases sometimes grouped under this head, in which the patient imagines himself a tea-pot, or a locomotive, or that his body has so increased in size that he can not get through the door, or has a morbid dread of thieves, assassins, etc., which properly belong to that class.

The causes of hypochondriasis are various. Sometimes a disposition to it seems to be hereditary, making its appearance after middle age from slight exciting causes. It usually results from prolonged mental exertion, or letting the mind dwell constantly on one subject, and especially in persons of sedentary habits.

"Whatever exhausts, or directly depresses cerebral power, as intense application of the mind to difficult or abstract subjects, anxieties respecting schemes, speculations, or objects of ambition; disappointments, sorrow, fright or sudden alarm; the depraving passions; severe losses of fortune, or friends; indulgence of sombre or sad feelings; devotion to music and the fine arts; reading medical books, etc., and whatever favors congestion of the brain, may cause the complaint."—*Copland*.

SYMPTOMS.—In a majority of cases we find considerable derangement of the digestive organs; the tongue is coated at the base; there is clamminess and bad taste in the mouth in the morning; digestion is attended with flatulence and eructations, and the bowels are constipated. The secretions are deranged; the skin being dry and harsh, or soft, pale and relaxed, with feeble circulation and coldness; the urine is usually copious, but deposits the lithates or phosphates. There is marked hyperæsthesia in many cases, the sensibility being so exalted that the slightest suffering is magnified into intense pain, and there is constant suffering from wandering pains in various parts of the body.

Occasionally the patient seems dull and impassive, brooding over his troubles and diseases, and seems to feel no acute suffering, and is with great difficulty aroused so as to describe his imaginary diseases, answering that he knows them to be such as are incurable by medicine, and therefore it is useless to describe them. In the one case the patient is always complaining, and evidences of suffering are well marked; in the other it is very evident that the patient is diseased, but he is wrapped up in himself, and constantly brooding over his diseases, rather than complaining about them.

In many cases the patient, notwithstanding the severe character of the symptoms, presents all the appearances of sound health. "He often complains of violent pains in the temples, forehead, or occiput, or of a general head-

ache, with dimness of sight, and noises in the ears, or of a sense of weight or pressure, more intolerable than pain at the vertex, with giddiness or confusion of mind; and sometimes of a constriction or tightness of the head or temples, or of a morbid sensibility of the scalp and roots of the hair. Occasionally the senses are morbidly acute, and intolerant of light and noise. Pains resembling rheumatism, or those of syphilis, are felt in various situations, occasionally with a feeling of burning or heat, and sometimes of coldness, horripilations, cramps, feebleness, or threatened paralysis of one or other of the extremities. Weakness of the limbs, unsteadiness in walking, or feebleness of the joints (in some instances with neuralgic pains) and great susceptibility to cold and heat, are not unfrequently complained of. The morbid sensibility of the hypochondriac is generally increased by a cold and humid state of the atmosphere, by easterly winds, and by very warm seasons. His mind is incapable of exertion or prolonged attention, although when aroused, he may be lively and acute; but he soon becomes engaged in his own feelings and sufferings. To these he frequently recurs in conversation, whenever he has an opportunity of doing so, although he seems to suspect that the subject is unpleasant to those who listen to him, and therefore suppresses a part of his complainings. In some cases there is dyspnea, constriction of the chest, with a dry, short, or spasmodic cough, and occasionally a sense of suffocation or constriction is felt in the throat, with flatulence and various other symptoms resembling those attendant on hysteria. These phenomena have induced several writers to consider the disease closely allied to hysteria, and the severe palpitations, or irregular action of the heart, frequently also complained of, have further countenanced the idea; while they have excited the anxiety of the patient and induced him to believe himself the subject of irremedial disease of the heart. Sleep is sometimes materially disturbed, and occasionally the hour of repose is ardently

looked for; but in other cases it is dreaded as aggravating the distress. The patient is often tortured with the most distressing feelings, which are greatly aggravated by his fears. He dreads impending dissolution, from the symptoms referred to the head, heart or chest. His ideas are concentrated on himself and his feelings, and he is incapable of attention or mental exertion, unless by circumstances of unusual interest or moment. Occasionally vertigo, dimness of vision, and intolerance of light and noise, are so great as to justify his fears; and the pains in the head, or the sensation of pressure on the head and temples, are so severe that the eyes seem starting from their sockets."—*Copland*.

HEADACHE.

Headache is produced by many different causes, and though we can not tell why they produce this affection, or even what structure it is that is painful, we are enabled, by regarding these causes, to remove, and even to permanently cure the disease. We might classify headache as follows: 1st, Headache from determination of blood; 2d, from cold; 3d, from derangement of the stomach; 4th, from deficient urinary secretion; 5th, from malaria; and 6th, sympathetic.

Headache from determination of blood is a very frequent form of the disease, and may arise from any cause producing irritation of the brain, as over-excitement, severe exercise in a stooping position, exposure to the sun, etc. The symptoms of this form of headache are, intense aching pain in the head of a tensive or throbbing character, the head is hot, the face flushed, the eyes suffused, and the secretions more or less arrested.

We may give a brisk purgative to evacuate the bowels; use the hot foot bath, and give a warm diaphoretic infusion, as of the pleurisy root, or ginger. Tincture of gel-seminum, in doses of from ten to twenty drops, frequently

gives speedy relief; and if very persistent, we may use a solution of acetate of potash.

Headache from cold is a frequent form of the disease in winter and spring, and will sometimes last for several days at a time. It seems to be dependent partially upon arrest of secretion, but more especially upon the sub-inflammatory condition of the mucous membrane of the nose, pharynx, etc. The head feels full and heavy, and the pain is usually dull and aching, with occasional sharp, darting pains just above the eyes, especially on stooping, or any continued mental exertion.

We would treat this case as we would the bad cold it is associated with. The feet should be bathed in hot mustard water, the patient packed warmly in bed, and an active diaphoretic used to induce free perspiration. A purgative may frequently be used with advantage, and sometimes the speediest relief is obtained from the use of an emetic. Tincture of gelsemium, in doses of ten to thirty drops every two or three hours, is a valuable remedy in many cases, and an alkaline diuretic should follow the diaphoretic. Frequently we would direct a sinapism to the back of the neck and between the shoulders, and occasionally in severe cases we may use the cups.

Headache from deficient action of the kidneys, is, in my opinion, the most common form of the disease. It is occasioned by cold or any cause that tends to arrest the secretion. In some persons it recurs frequently, and lasts for one or two days at a time, so as to become a source of great annoyance. In the milder cases the head feels heavy and dull, and there is a dull, aching pain and feeling of soreness in the base of the cranium, sometimes shooting from side to side, and at others from before backward. In severe attacks, the pain is intense, darting, throbbing, and tensive, and is aggravated by motion, and especially by noise, or stooping. If attention is called to it, it will be noticed that the urine was scanty prior to the attack, and became more free afterward.

We can mitigate this form of the disease by the administration of purgatives and diaphoretics, but it is more readily arrested by the use of the saline diuretics. The tendency to the disease may be frequently overcome by the employment of a solution of acetate of potash in the usual doses, whenever the head commences to feel heavy and bad.

Derangement of the stomach is a frequent cause of headache, and especially in persons of sedentary habits, and those who have but little exercise in the open air. It is noticed in these cases that the susceptibility of the nervous system is increased, and the digestive and assimilative functions weakened. This form of headache is induced by anything that irritates the stomach, as indulgence in improper food, eating late suppers, overloading the stomach, too free use of stimulants, especially if not accustomed to their use, constipation of the bowels, etc. An attack of this headache usually comes on with a sense of weight and tension, with dizziness, and a sharp, lancinating pain when the patient stoops. In an hour or two the patient frequently feels chilly, and there is a sensation of nausea and disgust, which not unfrequently terminates in vomiting. The pain now becomes severe, is dull, aching and tensive, with throbbing in the temples, and almost insupportable weight; or is sharp and lancinating, darting from one part to another, and seeming sometimes as if the head would be torn to pieces with its violence. It usually commences in the morning, and does not terminate until the patient goes to sleep at night, and in rare cases continues for several days.

If called to a case of this kind of headache during the attack, I usually administer an emetic, one that will act quickly and kindly being preferred. There is no other way to check the paroxysm in a majority of cases, and this is very efficient. Otherwise, I would have the feet bathed in hot mustard water, a sinapism applied over the epigastrium and upon the nape of the neck, and give

freely an infusion of sage, spearmint, pennyroyal, or any warm, stimulating diaphoretic. Quite frequently when the patient has drunk a cupful, vomiting ensues, and it is thrown up; if it is now repeated, in a short time the patient will go to sleep, and will awake refreshed. We can generally ward off an attack by the use of the neutralizing cordial, or a mild cathartic taken the evening previous, or by the administration of an alkaline diuretic. For the radical cure, we will adopt such means as would seem indicated from the condition of the stomach, some form of dyspepsia being almost always present.

Headache is frequently periodic, and is occasioned, we suppose, by the same causes that give rise to other periodic diseases. In the most frequent form, it comes on in the morning, and gradually increases up to noon, and then decreases until evening. It may, however, appear at any period of the day, or every other, or every third day. The pain is sometimes dull, heavy and contusive, and at others sharp, lancinating and throbbing; there may or may not be sickness of the stomach, or chilly sensations, or slight febrile action when the pain is most intense.

In periodic headache we wish first to establish the secretions, which are almost always impaired, and next to administer some remedy capable of controlling the periodicity. Thus, if the bowels are costive we would give a podophyllin purgative, with a diaphoretic, as essential tincture of asclepias and eupatorium, with tincture of gelseminum, and an alkaline diuretic. In some cases this will control the headache, but usually it only prepares the way for the administration of quinine, which is given in the same doses that would be used in a case of ague. Given in this way, quinine always arrests the disease, but if the system is not properly prepared for it, it frequently fails.

Sympathetic headache is sometimes called *nervous*, and generally occurs in feeble, debilitated persons, and those of a sedentary habit. It is almost always associated with

diseases of some other part of the body, and is thus frequently seen in cases of uterine disease, especially functional lesions, in derangements of the urino-genital organs, the bowels, etc. The pain varies in character, resembling the two preceding forms, and recurs frequently but at irregular periods.

Having determined the nature of the lesion giving rise to the headache, we will frequently relieve it either by curing or palliating the primary disease. Any of the means already named may be employed in addition.

PART VI.

NOTES ON NURSING:

WHAT IT IS AND WHAT IT IS NOT.

BY FLORENCE NIGHTINGALE.

SHALL we begin by taking it as a general principle, that all disease, at some period or other of its course, is more or less a reparative process, not necessarily accompanied with suffering—an effort of nature to remedy a process of poisoning or of decay, which has taken place weeks, months, sometimes years beforehand, unnoticed, the termination of the disease being then, while the antecedent process was going on, determined?

If we accept this as a general principle, we shall be immediately met with anecdotes and instances to prove the contrary. Just so if we were to take, as a principle, all the climates of the earth are meant to be made habitable for man, by the efforts of man—the objection would be immediately raised, Will the top of Mount Blanc ever be made habitable? Our answer would be, it will be many thousands of years before we have reached the bottom of Mount Blanc in making the earth healthy. Wait till we have reached the bottom before we discuss the top.

In watching diseases, both in private houses and in public hospitals, the thing which strikes the experienced observer most forcibly is this, that the symptoms or the sufferings generally considered to be inevitable and incident to the disease, are very often not symptoms of the disease at all, but of something quite different—of the

want of fresh air, or of light, or of warmth, or of quiet, or of cleanliness, or of punctuality and care in the administration of diet—of each or of all of these. And this quite as much in private as in hospital nursing.

The reparative process which nature has instituted, and which we call disease, has been hindered by some want of knowledge or attention, in one or in all of these things, and pain, suffering, or interruption of the whole process sets in.

If a patient is cold, if a patient is feverish, if a patient is faint, if he is sick after taking food, if he has a bed-sore, it is generally the fault not of the disease, but of the nursing.

I use the word nursing for want of a better. It has been limited to signify little more than the administration of medicines and the application of poultices. It ought to signify the proper use of fresh air, light, warmth, cleanliness, quiet, and the proper selection and administration of diet—all at the least expense of vital power to the patient.

It has been said and written scores of times, that every woman makes a good nurse. I believe, on the contrary, that the very elements of nursing are all but unknown.

By this I do not mean that the nurse is always to blame. Bad sanitary, bad architectural, and bad administrative arrangements often make it impossible to nurse. But the art of nursing ought to include such arrangements as alone make what I understand by nursing, possible.

The art of nursing, as now practised, seems to be expressly constituted to unmake what God had made disease to be, viz., a reparative process.

To recur to the first objection. If we are asked, Is such or such a disease a reparative process? Can such an illness be unaccompanied with suffering? Will any care prevent such a patient from suffering this or that? I humbly say, I do not know. But when you have done

away with all that pain and suffering, which in patients are the symptoms, not of their disease, but of the absence of one or all of the above-mentioned essentials to the success of nature's reparative processes, we shall then know what are the symptoms of and the suffering inseparable from the disease.

Another and the commonest exclamation which will be instantly made, is, Would you do nothing, then, in cholera, fever, etc.?—so deep-rooted and universal is the conviction that to give medicine is to be doing something, or rather every thing; to give air, warmth, cleanliness, etc., is to do nothing. The reply is, that in these, and many other similar diseases, the exact value of particular remedies and modes of treatment is by no means ascertained, while there is universal experience as to the extreme importance of careful nursing in determining the issue of the disease.

II. The very elements of what constitutes good nursing are as little understood for the well as for the sick. The same laws of health or of nursing, for they are in reality the same, obtain among the well as among the sick. The breaking of them produces only a less violent consequence among the former than among the latter—and this sometimes, not always.

It is constantly objected, "But how can I obtain this medical knowledge? I am not a doctor. I must leave this to doctors."

Oh, mothers of families! You who say this, do you know that one in every seven infants in this civilized land of England perishes before it is one year old? That, in London, two in every five die before they are five years old? and in the other great cities of England, nearly one out of two? * "The life duration of tender babies," as

*Upon this fact the most wonderful deductions have been strung. For a long time an announcement something like the following has been going the round of the papers: "More than 25,000 children die every year in London under ten years of age; therefore we want a children's hospital." This spring there was a prospectus issued, and divers other means taken to this effect: "There

some Saturn, turned analytical chemist, says, "is the most delicate test" of sanitary conditions. Is all this premature suffering and death necessary? Or did nature intend mothers to be always accompanied by doctors? Or is it better to learn the piano-forte than to learn the laws which subserve the preservation of offspring?

Macaulay somewhere says, that it is extraordinary that, whereas the laws of the motions of the heavenly bodies, far removed as they are from us, are perfectly well understood, the laws of the human mind, which are under our observation all day and every day are no better understood than they were two thousand years ago.

But how much more extraordinary is it, that, what we might call the coxcombs of education, *e. g.*, the elements of astronomy, are now taught to every school-girl, neither mothers of families of any class, nor school-mistresses of any class, nor nurses of children, nor nurses of hospitals, are taught anything about those laws which God has assigned to the relations of our bodies with the world in which he has put them. In other words, the laws which make these bodies, into which He has put our minds, healthy or unhealthy organs of those minds, are all but

is a great want of sanitary knowledge in women; therefore we want a women's hospital." Now, both the above facts are too sadly true. But what is the deduction? The causes of the enormous child mortality are perfectly well known; they are chiefly want of cleanliness, want of ventilation, want of whitewashing; in one word, defective household hygiene. The remedies are just as well known; and among them is certainly not the establishment of a child's hospital. This may be a want; just as there may be a want of hospital room for adults. But the Registrar General would certainly never think of giving us, as a cause for the high rate of child mortality in (say) Liverpool, that there was not sufficient hospital room for children; nor would he urge upon us, as a remedy, to found an hospital for them.

Again, women, and the best women, are woefully deficient in sanitary knowledge; although it is to women that we must look, first and last, for its application, as far as household hygiene is concerned. But who would ever think of citing the institution of a women's hospital as the way to cure this want?

We have it, indeed, upon very high authority, that there is some fear lest hospitals, as they have been hitherto, may not have generally increased, rather than diminished, the rate of mortality: especially child mortality.

unlearned. Not but that these laws—the laws of life—are in a certain measure understood; but not even mothers think it worth their while to study them—to study how to give their children healthy existences. They call it medical or physiological knowledge, fit only for doctors.

Another objection.

We are constantly told, “But the circumstances which govern our children’s health are beyond our control. What can we do with winds? There is the east wind. Most people can tell before they get up in the morning whether the wind is in the east.”

To this one can answer with more certainty than to the former objections. Who is it who knows when the wind is in the east? Not the Highland drover, certainly, exposed to the east wind; but the young lady who is worn out with the want of exposure to the fresh air, to sunlight, etc. Put the latter under as good sanitary circumstances as the former, and she too will not know when the wind is in the east.

I. VENTILATION AND WARMING.

The very first canon of nursing, the first and the last thing upon which a nurse’s attention must be fixed, the first essential to a patient, without which all the rest you can do for him is as nothing, with which I had almost said you may leave all the rest alone, is this: **TO KEEP THE AIR HE BREATHES AS PURE AS THE EXTERNAL AIR, WITHOUT CHILLING HIM.** Yet what is so little attended to? Even where it is thought of at all, the most extraordinary misconceptions reign about it. Even in admitting air into the patient’s room or ward, few people ever think where that air comes from. It may come from a corridor into which other wards are ventilated, from a hall, always unaired, always full of the fumes of gas, dinner, of various kinds of mustiness; from an underground kitchen, sink, wash-house, water-closet, or even, as I myself have had sorrow-

ful experience, from open sewers loaded with filth; and with this the patient's room or ward is aired, as it is called—poisoned, it should rather be said. Always air from the air without, and that, too, through those windows through which the air comes freshest. From a closed court, especially if the wind do not blow that way, air may come as stagnant as any from a hall or corridor.

Again, a thing I have often seen both in private houses and institutions. A room remains uninhabited; the fireplace is carefully fastened up with a board; the windows are never opened; probably the shutters are kept always shut; perhaps some kind of stores are kept in the room; no breath of fresh air can by possibility enter into that room, nor any ray of sun. The air is as stagnant, musty and corrupt as it can by possibility be made. It is quite ripe to breed small-pox, scarlet fever, diphtheria, or anything else you please*.

Yet the nursery, ward or sick-room adjoining will positively be aired (?) by having the door opened into that room. Or children will be put into that room, without previous preparation, to sleep.

A short time ago a man walked into a back-kitchen in Queen Square, and cut the throat of a poor, consumptive creature, sitting by the fire. The murderer did not deny the act, but simply said, "It's all right." Of course he was mad.

But in our case, the extraordinary thing is that the victim says, "It's all right," and that we are not mad. Yet, although we "nose" the murderers, in the musty, unaired, unsunned room, the scarlet fever which is behind the door, or the fever and hospital gangrene which are stalking

* The common idea as to uninhabited rooms, is, that they may safely be left with doors, windows, shutters, and chimney-board, all closed—hermetically sealed, if possible—to keep out the dust, it is said; and that no harm will happen if the room is but opened a short hour before the inmates are put in. I have often been asked the question for uninhabited rooms, But when ought the windows to be opened? The answer is, when ought they to be shut?

among the crowded beds of a hospital ward, we say, "It's all right."

With a proper supply of windows, and a proper supply of fuel in open fire places, fresh air is comparatively easy to secure when your patient or patients are in bed. Never be afraid of open windows then. People don't catch cold in bed. This is a popular fallacy. With proper bed-clothes and hot bottles, if necessary, you can always keep a patient warm in bed, and well ventilate him at the same time.

But a careless nurse, be her rank and education what it may, will stop up every cranny, and keep a hot-house heat when her patient is in bed; and if he is able to get up, leave him comparatively unprotected. The time when people take cold (and there are many ways of taking cold, besides a cold in the nose) is when they first get up after the two-fold exhaustion of dressing and of having had the skin relaxed by many hours, perhaps days, in bed, and thereby rendered more incapable of reaction. Then the same temperature which refreshes the patient in bed may destroy the patient just risen. And common sense will point out that while purity of air is essential, a temperature must be secured which shall not chill the patient. Otherwise the best that can be expected will be a feverish reaction.

To have the air within as pure as the air without, it is not necessary, as often appears to be thought, to make it as cold.

In the afternoon again, without care, the patient, whose vital powers have then risen, often finds the room as close and oppressive as he found it cold in the morning. Yet the nurse will be terrified if a window is opened.*

*It is very desirable that the windows in a sick room should be such that the patient shall, if he can move about, be able to open and shut them easily himself. In fact, the sick room is very seldom kept aired if this is not the case—so very few people have any perception of what is a healthy atmosphere for the sick. The sick man often says, "This room where I spend twenty-two

I know an intelligent, humane house surgeon, who makes a practice of keeping the ward windows open. The physicians and surgeons invariably close them while going their rounds, and the house surgeon very properly as invariably opens them whenever the doctors have turned their backs.

In a little book on nursing, published a short time ago, we are told that, "with proper care it is very seldom that the windows cannot be opened for a few minutes twice in the day to admit fresh air from without." I should think not; nor twice in the hour either. It only shows how little the subject has been considered.

Of all methods of keeping the patient warm, the very worst certainly is to depend for heat on the breath and bodies of the sick. I have known a medical officer keep his ward windows hermetically closed; thus exposing the sick to all the dangers of an infected atmosphere, because he was afraid that, by admitting fresh air, the temperature of the ward would be too much lowered. This is a destructive fallacy.

To attempt to keep a ward warm at the expense of making the sick repeatedly breathe their own hot, humid, putrescing atmosphere, is a certain way to delay recovery or to destroy life.

Do you ever go into the bed-rooms of any persons of any class, whether they contain one, two or twenty people, whether they hold sick or well, at night, or before the windows are opened in the morning, and ever find the air anything but unwholesomely close and foul? And why should it be so? And of how much importance it is that it should not be so. During sleep, the human body, even when in health, is far more injured by the influence of foul air than when awake. Why can't you keep the air all night, then, as pure as the air without, in the rooms you

hours out of the twenty-four is fresher than the other where I spend only two, because here I can manage the windows myself." And it is true.

sleep in? But for this, you must have sufficient outlet for the impure air you make yourselves to go out; sufficient inlet for the pure air from without to come in. You must have open chimneys, open windows or ventilators; no close curtains round your beds; no shutters or curtains to your windows; none of the contrivances by which you undermine your own health, or destroy the chances of recovery of your sick.*

A careful nurse will keep a constant watch over her sick, especially weak, protracted, and collapsed cases, to guard against the effects of the loss of vital heat by the patient himself. In certain diseased states much less heat is produced than in health; and there is a constant tendency to the decline and ultimate extinction of the vital powers by the call made upon them to sustain the heat of the body. Cases where this occurs should be watched

*Dr. Angus Smith's air test, if it could be made of simpler application, would be invaluable to use in every sleeping and sick room. Just as without the use of a thermometer no nurse should ever put a patient into a bath, so should no nurse, or mother, or superintendent, be without the air test in any ward, nursery or sleeping room. If the main function of a nurse is to maintain the air within the room as fresh as the air without, without lowering the temperature, then she should always be provided with a thermometer which indicates the temperature, with an air test which indicates the organic matter of the air. But to be used, the latter must be made as simple a little instrument as the former, and both should be self-registering. The senses of nurses and mothers become so dulled to foul air, that they are perfectly unconscious of what an atmosphere they have let their children, patients or charges sleep in. But if the tell-tale air test were to exhibit in the morning, both to nurses and patients, and to the superior officer going round, what the atmosphere has been during the night, I question if any greater security could be afforded against a recurrence of the misdemeanor.

And oh, the crowded national school, where so many children's epidemics have their origin, what a tale its air test would tell. We should have parents saying, and saying rightly, "I will not send my child to that school, the air test stands at 'Horrid.'" And the dormitories of our great boarding schools! Scarlet fever would be no more ascribed to contagion, but to its right cause, the air test standing at "Foul."

We should hear no longer of "Mysterious Dispensations," and of "Plague and Pestilence," being "in God's hands," when, so far as we know, He has put them into our own. The little air test would both betray the cause of these "mysterious pestilences," and call upon us to remedy it.

with the greatest care from hour to hour, I had almost said from minute to minute. The feet and legs should be examined by the hand from time to time, and whenever a tendency to chilling is discovered, hot bottles, hot bricks, or warm flannels, with some warm drink, should be made use of until the temperature is restored. The fire should be, if necessary, replenished. Patients are frequently lost in the latter stages of disease from want of attention to such simple precautions. The nurse may be trusting to the patient's diet, or to his medicine, or to the occasional dose of stimulant which she is directed to give him, while the patient is all the while sinking from want of a little external warmth. Such cases happen at all times, even during the light of summer. This fatal chill is most apt to occur toward early morning, at the period of the lowest temperature of the twenty-four hours, and at the time when the effect of the preceding day's diet is exhausted.

Generally speaking, you may expect that weak patients will suffer cold much more in the morning than in the evening. The vital powers are much lower. If they are feverish at night, with burning hands and feet, they are almost sure to be chilly and shivering in the morning. But nurses are very fond of heating the foot-warmer at night, and of neglecting it in the morning when they are busy. I should reverse the matter.

All these things require common sense and care; yet, perhaps, in no one single thing is so little common sense shown, in all ranks, as in nursing.*

* With private sick, I think, but certainly with hospital sick, the nurse should never be satisfied as to the freshness of their atmosphere, unless she can feel the air gently moving over her face, when still.

But it is often observed that the nurses who make the greatest outcry against open windows, are those who take the least pains to prevent dangerous draughts. The door of the patients' room or ward must sometimes stand open to allow of persons passing in and out, or heavy things being carried in and out. The careful nurse will keep the door shut while she shuts the windows, and then, and not before, set the door open, so that a patient may not be left sitting up in bed, perhaps in a profuse perspiration, directly in the draught between the open door and window

The extraordinary confusion between cold and ventilation, even in the minds of well-educated people, illustrates this. To make a room cold is by no means necessarily to ventilate it. Nor is it at all necessary, in order to ventilate a room, to chill it. Yet, if a nurse finds a room close, she will let out the fire, thereby making it closer, or she will open the door into a cold room, without a fire, or an open window in it, by way of improving the ventilation. The safest atmosphere of all for a patient is a good fire and an open window, excepting in extremes of temperature; (yet no nurse can ever be made to understand this.) To ventilate a small room without draughts of course requires more care than to ventilate a large one.

Another extraordinary fallacy is the dread of night air. What air can we breathe at night but night air? The choice is between pure night air from without and foul night air from within. Most people prefer the latter. An unaccountable choice. What will they say if it is proved to be true that fully one half of all the disease we suffer from, is occasioned by people sleeping with their windows shut? An open window most nights in the year can never hurt any one. This is not to say that light is not necessary for recovery. In great cities, night air is often the best and purest air to be had in the twenty-four hours. I could better understand in towns shutting the windows during the day than during the night, for the sake of the sick. The absence of smoke, the quiet, all tend to making night the best time for airing the patients. One of our highest medical authorities on consumption and climate has told me that the air in London is never so good as after ten o'clock at night.

Always air your room, then, from the outside air, if possible. Windows are made to open; doors are made to shut—a truth which seems extremely difficult of apprehension. I have seen a careful nurse airing her patient's

Neither, of course, should a patient, while being washed or in any way exposed, remain in the draught of an open window or door.

room through the door, near to which were two gas-lights, (each of which consumes as much air as eleven men,) a kitchen, a corridor, the composition of the atmosphere in which consisted of gas, paint, foul air, never changed, full of effluvia, including a current of sewer air from an ill-placed sink, ascending in a continual stream by a well-staircase, and discharging themselves constantly into the patient's room. The window of the said room if opened, was all that was desirable to air it. Every room must be aired from without—every passage from without. But the fewer passages there are in a hospital the better.

If we are to preserve the air within as pure as the air without, it is needless to say that the chimney must not smoke. Almost all smoky chimneys can be cured—from the bottom, not from the top. Often it is only necessary to have an inlet for air to supply the fire, which is feeding itself, for want of this, from its own chimney. On the other hand, almost all chimneys can be made to smoke by a careless nurse, who lets the fire get low and then overwhelms it with coal—not, as we verily believe, in order to spare herself trouble, (for very rare is unkindness to the sick,) but from not thinking what she is about.

In laying down the principle that the first object of the nurse must be to keep the air breathed by her patient as pure as the air without, it must not be forgotten that every thing in the room which can give off effluvia, besides the patient, evaporates itself into his air; and it follows that there ought to be nothing in the room, excepting him, which can give off effluvia or moisture. Out of all damp towels, etc., which become dry in the room, the damp, of course, goes into the patient's air. Yet this "of course" seems as little thought of, as if it were an obsolete fiction. How very seldom you see a nurse who acknowledges by her practice that nothing at all ought to be aired in the patient's room, that nothing at all ought to

be cooked at the patient's fire! Indeed, the arrangements often make this rule impossible to observe.

If the nurse be a very careful one, she will, when the patient leaves his bed, but not his room, open the sheets wide, and throw the bed-clothes back, in order to air his bed. And she will spread the wet towels or flannels carefully out upon a horse, in order to dry them. Now, either these bed-clothes and towels are not dried and aired, or they dry and air themselves into the patient's air. And whether the damp and effluvia do him most harm in his air or in his bed, I leave to you to determine, for I cannot.

Even in health people cannot repeatedly breathe air in which they live with impunity, on account of its becoming charged with unwholesome matter from the lungs and skin. In disease where everything given off from the body is highly noxious and dangerous, not only must there be plenty of ventilation to carry off the effluvia, but everything which the patient passes must be instantly removed away; as being more noxious than even the emanations from the sick.

Of the fatal effects of the effluvia from the excreta it would seem unnecessary to speak, were they not so constantly neglected. Concealing the utensils behind the valance to the bed seems all the precaution which is thought necessary for safety in private nursing. Did you but think for one moment of the atmosphere under that bed, the saturation of the under side of the mattress with the warm evaporations, you would be startled and frightened too!

The use of any chamber utensil *without a lid** should

* But never, never should the possession of this indispensable lid confirm you in the abominable practice of letting the chamber utensil remain in a patient's room unemptied, except once in the twenty-four hours, i. e., when the bed is made. Yes, impossible as it may appear, I have known the best and most attentive nurses guilty of this; aye, and have known, too, a patient afflicted with severe diarrhoea for ten days, and the nurse (a very good one) not know of it, because the chamber utensil (one with a lid) was emptied only once in twenty-four hours, and that by the housemaid who came in and made the patient's bed every evening. As well might you have a sewer under

be utterly abolished, whether among sick or well. You can easily convince yourself of the necessity of this absolute rule, by taking one with a lid, and examining the underside of that lid. It will be found always covered, whenever the utensil is not empty, by condensed, offensive moisture. Where does that go when there is no lid?

Earthenware, or, if there is any wood, highly polished and varnished wood, are the only materials fit for patients' utensils. The very lid of the old abominable close-stool is enough to breed a pestilence. It becomes saturated with offensive matter, which scouring is only wanted to bring out. I prefer an earthenware lid, as being always cleaner. But there are various good new-fashioned arrangements.

A slop-pail should never be brought into a sick room. It should be a rule invariable, rather more important in the private house than elsewhere, that the utensil should be carried directly to the water-closet, emptied there, rinsed there, and brought back. There should always be water and a cock in every water-closet for rinsing. But even if there is not, you must carry water there to rinse with. I have actually seen, in the private sick room, the utensils emptied into the foot-pan, and put back unrinsed under the bed. I can hardly say which is most abominable, whether to do this or to rinse the utensil *in* the sick room. In the best hospitals it is now a rule that no slop-pail shall ever be brought into the wards, but that the

the room, or think that in a water-closet the plug need be pulled up but once a day. Also take care that your lid, as well as your utensil, be always thoroughly rinsed.

If a nurse declines to do these kinds of things for her patient, "because it is not her business," I should say that nursing was not her calling. I have seen surgical "sisters," women whose hands were worth to them two or three guineas a week, down upon their knees scouring a room or hut, because they thought it otherwise not fit for their patients to go into. I am far from wishing nurses to scour. It is a waste of power. But I do say that these women had the true nurse-calling—the good of their sick first, and second only the consideration what it was their "place" to do; and that women who wait for the housemaid to do this, or for the charwoman to do that, when their patients are suffering, have not the making of a nurse in them.

utensils shall be carried direct to be emptied and rinsed at the proper place. I would it were so in the private house.

Let no one ever depend upon fumigations, "disinfectants," and the like, for purifying the air. The offensive thing, not its smell, must be removed. A celebrated medical lecturer began one day, "Fumigations, gentlemen, are of essential importance; they make such an abominable smell that they compel you to open the window." I wish all the disinfecting fluids invented made such an "abominable smell" that they forced you to admit fresh air. That would be a useful invention.

II. HEALTH OF HOUSES.*

There are five essential points in securing the health of houses:

1. Pure air.
2. Pure water.
3. Efficient drainage.
4. Cleanliness.
5. Light.

Without these, no house can be healthy. And it will be unhealthy just in proportion as they are deficient.

1. To have pure air, let your house be so constructed as that the outer atmosphere shall find its way with ease to every corner of it. House architects hardly ever consider this. The object in building a house is to obtain the

* The health of carriages, especially close carriages, is not of sufficient universal importance to mention here, otherwise than cursorily. Children, who are always the most delicate test of sanitary conditions, generally can not enter a close carriage without being sick; and very lucky for them that it is so. A close carriage, with the horse-hair cushions and linings always saturated with organic matter, if to this be added the windows up, is one of the most unhealthy of human receptacles. The idea of taking an airing in it, is something preposterous. Dr. Angus Smith has shown that a crowded railway carriage, which goes at the rate of thirty miles an hour, is as unwholesome as the strong smell of a sewer, or as a back yard in one of the most unhealthy courts off one of the most unhealthy streets in Manchester.

largest interest for the money, not to save doctors' bills to the tenants. But, if tenants should ever become so wise as to refuse to occupy unhealthy constructed houses, and if insurance companies should ever come to understand their interest so thoroughly as to pay a sanitary surveyor to look after the houses where their clients live, speculative architects would speedily be brought to their senses. As it is, they build what pays best. And there are always people foolish enough to take the houses they build. And if in the course of time the families die off, as is so often the case, no body ever thinks of blaming any but Providence* for the result. Ill-informed medical men aid in sustaining the delusion, by laying the blame on "current contagions." Badly constructed houses do for the healthy what badly constructed hospitals do for the sick. Once insure that the air in a house is stagnant, and sickness is certain to follow.

2. Pure water is more generally introduced into houses than it used to be, thanks to the exertions of the sanitary reformers. Within the last few years, a large part of London was in the daily habit of using water polluted by the drainage of its sewers and water-closets. This has happily been remedied. But, in many parts of the country, well-water of a very impure kind is used for domestic purposes. And when epidemic disease shows itself, persons using such water are almost sure to suffer.

3. It would be curious to ascertain by inspection, how many houses in London are really well drained. Many people would say, surely all or most of them. But many people have no idea in what good drainage consists. They think that a sewer in the street, and a pipe leading to it

* God lays down certain physical laws. Upon His carrying out such laws, depends our responsibility (that much abused word), for how could we have any responsibility for actions, the results of which we could not foresee, which would be the case if the carrying out of His laws were not certain? Yet we seem to be continually expecting that He will work a miracle—i. e., break His own laws expressly to relieve us of responsibility.

from the house, is good drainage. All the while the sewer may be nothing but a laboratory from which epidemic disease and ill health is being distilled into the house. No house, with any untrapped drain-pipe communicating immediately with a sewer, whether it be from water-closet, sink, or gully-grate, can ever be healthy. An untrapped sink may at any time spread fever or pyæmia among the inmates of a palace.

The ordinary oblong sink is an abomination. That great surface of stone, which is always left wet, is always exhaling into the air. I have known whole houses and hospitals smell of the sink. I have met just as strong a stream of sewer air coming up the back staircase of a grand London house from the sink, as I have ever met at Scutari; and I have seen the rooms in that house all ventilated by the open doors, and the passages all unventilated by the closed windows, in order that as much of the sewer air as possible might be conducted into and retained in the bed-rooms. It is wonderful.

Another great evil in house construction is carrying drains underneath the house. Such drains are never safe. All house drains should begin and end outside the walls. Many people will readily admit, as a theory, the importance of these things. But how few are there who can intelligently trace disease in their households to such causes! Is it not a fact, that when scarlet fever, measles, or small-pox appears among the children, the very first thought which occurs is, "where" the children can have "caught" the disease? And the parents immediately run over in their minds all the families with whom they may have been. They never think of looking at home for the source of the mischief. If a neighbor's child is seized with small-pox, the first question which occurs is, whether it had been vaccinated. No one would under-value vaccination; but it becomes of doubtful benefit to society when it leads people to look abroad for the source of evils which exist at home.

4. Without cleanliness, within and without your house, ventilation is comparatively useless. In certain foul districts of London, poor people used to object to open their windows and doors because of the foul smells that came in. Rich people like to have their stables and dunghill near their houses. But does it ever occur to them that with many arrangements of this kind it would be safer to keep the windows shut than open? You can not have the air of the house pure with dung heaps under the windows. These are common all over London. And yet people are surprised that their children, brought up in large, "well aired" nurseries and bed-rooms, suffer from children's epidemics. If they studied nature's laws in the matter of children's health, they would not be so surprised.

There are other ways of having filth inside a house beside having dirt in heaps. Old papered walls of years' standing, dirty carpets, uncleansed furniture, are just as ready sources of impurity to the air as if there were a dung heap in the basement. People are so unaccustomed from education and habits to consider how to make a home healthy, that they either never think of it at all, and take every disease as a matter of course, to be "resigned to" when it comes "as from the hand of Providence;" or if they ever entertain the idea of preserving the health of their household as a duty, they are very apt to commit all kinds of "negligences and ignorances" in performing it.

5. A dark house is always an unhealthy house, always an ill-aired house, always a dirty house. Want of light stops growth, and promotes scrofula, rickets, etc., among the children.

People lose their health in a dark house, and if they get ill, they can not get well again in it. More will be said about this farther on.

Three out of many "negligences and ignorances" in managing the health of houses generally, I will here mention as specimens: 1. That the female head in charge of

any building does not think it necessary to visit every hole and corner of it every day. How can she expect those who are under her to be more careful to maintain her house in a healthy condition than she who is in charge of it? 2. That it is not considered essential to air, to sun, and to clean rooms while uninhabited; which is simply ignoring the first elementary notion of sanitary things, and laying the ground ready for all kinds of diseases. 3. That the window, and one window, is considered enough to air a room. Have you never observed that any room, without a fire-place, is always close? And, if you have a fire-place, would you cram it up not only with a chimney-board, but perhaps with a great wisp of brown paper, in the throat of the chimney—to prevent the soot from coming down, you say? If your chimney is foul, sweep it; but don't expect that you can ever air a room with only one aperture; don't suppose that to shut up a room, is the way to keep it clean. It is the best way to foul the room and all that is in it. Don't imagine that if you, who are in charge, don't look to all these things yourself, those under you will be more careful than you are. It appears as if the part of a mistress now is to complain of her servants, and to accept their excuses—not to show them how there need be neither complaints made nor excuses.

But again, to look to all these things yourself does not mean to do them yourself. "I always open the windows," the head in charge often says. If you do it, it is by so much the better, certainly, than if it were not done at all. But can you not insure that it is done when not done by yourself? Can you insure that it is not undone when your back is turned? This is what being "in charge" means; and a very important meaning it is, too. The former only implies that just what you can do with your own hands is done; the latter that what ought to be done is always done.

And now, you think these things trifles, or at least exaggerated. But what you "think" or what I "think"

matters little. Let us see what God thinks of them. God always justifies his ways. While we are thinking, he has been teaching. I have known cases of hospital pyæmia quite as severe in handsome private houses as in any of the worst hospitals, and from the same cause, viz., foul air. Yet nobody learned the lesson; nobody learned *anything* at all from it. They went on *thinking*—thinking that the sufferer had scratched his thumb, or that it was singular that “all the servants” had “whitlows,” or that something was “much about this year; there is always sickness in our house.” This is a favorite mode of thought—leading not to inquire what is the uniform cause of these general “whitlows,” but to stifle all inquiry. In what sense is “sickness” being “always there,” a justification of its being “there” at all?

I will tell you what was the cause of this hospital pyæmia being in that large private house; it was that the sewer air from an ill-placed sink was carefully conducted into all the rooms by sedulously opening all the doors, and closing all the passage windows. It was that the slops were emptied into the foot pans; it was that the utensils were never properly rinsed; it was that the chamber crockery was rinsed with dirty water; it was that the beds were never properly shaken, aired, picked to pieces, or changed. It was that the carpets and curtains were always musty; it was that the furniture was always dusty; it was that the papered walls were saturated with dirt; it was that the floors were never cleaned; it was that the uninhabited rooms were never sunned, or cleaned, or aired; it was that the cupboards were always reservoirs of foul air; it was that the windows were always tight shut up at night; it was that no window was ever systematically opened even in the day, or that the right window was not opened. A person gasping for air might open a window for himself; but the servants were not taught to open the windows, to shut the doors; or they opened the windows upon a dank well

between high walls, not upon the airier court; or they opened the room doors into the unaired halls and passages, by way of airing the rooms. Now all this is not fancy, but fact. In that handsome house I have known in one summer three cases of hospital pyæmia, one of phlebitis, two of consumptive cough—all the *immediate* products of foul air. When, in temperate climates, a house is more unhealthy in summer than in winter, it is a certain sign of something wrong. Yet nobody learns the lesson. Yes, God always justifies his ways. He is teaching while you are not learning. This poor body loses his finger, that one loses his life; and all from the most easily preventible causes.*

The houses of the grandmothers and great-grandmothers of this generation, at least the country houses, with front door and back door always standing open, winter and summer, and a thorough draught always blowing through, with all the scrubbing, and cleaning, and polishing, and scouring which used to go on, the grandmothers, and still more the great-grandmothers, always out of doors, and never with a bonnet on, except to go to church—these things entirely account for the fact so often seen of a great-grandmother, who was a tower of physical vigor descending into a grandmother perhaps a little less vigorous, but still sound as a bell and healthy to the core, into a mother languid and confined to her carriage and

* I must say a word about servants' bed-rooms. From the way they are built, but oftener from the way they are kept, and from no intelligent inspection whatever being exercised over them, they are almost invariably dens of foul air, and the "servants' health" suffers in an "unaccountable" (?) way, even in the country; for I am by no means speaking only of London houses, where too often servants are put to live under the ground and over the roof. But in a country mansion, which was really a mansion, (not after the fashion of advertisements,) I have known three maids who slept in the same room ill of scarlet fever. "How catching it is," was of course the remark. One look at the room, one smell of the room, was quite enough. It was no longer unaccountable. The room was not a small one; it was up stairs, and it had two large windows; but nearly every one of the neglects enumerated above was there.

house, and lastly into a daughter sickly and confined to her bed. For, remember, even with a general decrease of mortality, you may often find a race thus degenerating, and oftener a family. You may see poor little feeble washed-out rags, children of a noble stock, suffering morally and physically, throughout their useless, degenerate lives; and yet people who are going to marry, and to bring more such into the world, will consult nothing but their own convenience as to where they are to live, or how they are to live.

With regard to the health of houses where there is a sick person, it often happens that the sick room is made a ventilating shaft for the rest of the house. For while the house is kept as close, unaired, and dirty as usual, the window of the sick room is kept a little open always, and the door occasionally. Now, there are certain sacrifices which a house with one sick person in it does make to that sick person: it ties up its knocker; it lays straw before it in the street. Why can't it keep itself thoroughly clean and unusually well aired, in deference to the sick person.

We must not forget what, in ordinary language, is called "Infection;"*—a thing of which people are gen-

*Is it not living in a continual mistake to look upon diseases, as we do now, as separate entities, which must exist, like cats and dogs? instead of looking upon them as conditions, like a dirty and a clean condition, and just as much under our own control; or rather as the reactions of kindly nature against the conditions in which we have placed ourselves.

I was brought up, both by scientific men and ignorant women, distinctly to believe that small-pox, for instance, was a thing of which there was once a first specimen in the world, which went on propagating itself, in a perpetual chain of descent, just as much as that there was a first dog, (or a first pair of dogs,) and that small-pox would not begin itself any more than a new dog would begin without there having been a parent dog.

Since then I have seen with my eyes and smelt with my nose small-pox growing up in first specimens, either in close rooms, or in overcrowded wards, where it could not by any possibility have been caught, but must have begun.

Nay, more, I have seen diseases begin, grow up, and pass into one another. Now, dogs do not pass into cats.

erally so afraid that they frequently follow the very practice in regard to it which they ought to avoid. Nothing used to be considered so infectious or contagious as small-pox; and people not very long ago used to cover up patients with heavy bed-clothes, while they kept up large fires and shut the windows. Small-pox, of course, under this *regime*, is very "infectious." People are somewhat wiser now in their management of this disease. They have ventured to cover the patients lightly, and to keep the windows open; and we hear much less of the "infection" of small-pox than we used to do. But do people in our days act with more wisdom on the subject of "infection" in fevers, scarlet fever, measles, etc., than their forefathers did with the small-pox? Does not the popular idea of "infection" involve that people should take greater care of themselves than of the patient? that, for instance, it is safer not to be too much with the patient, not to attend too much to his wants? Perhaps the best illustration of the utter absurdity of this view of duty in attending on "infectious" diseases, is afforded by what was very recently the practice, if it is not so even now, in some of the European lazarets—in which the plague-patient used to be condemned to the horrors of filth, overcrowding, and want of ventilation, while the medical attendant was ordered to examine the patient's tongue through an opera-glass, and to toss him a lancet to open his abscesses with?

True nursing ignores infection, except to prevent it. Cleanliness and fresh air from open windows, with unremitting attention to the patient, are the only defense a true nurse either asks or needs.

I have seen, for instance, with a little overcrowding, continued fever grow up; and with a little more, typhoid fever; and with a little more, typhus, and all in the same ward or hut.

Would it not be far better, truer, and more practical, if we looked upon disease in this light?

For diseases, as all experience shows, are adjectives, not noun substantives

Wise and humane management of the patient is the best safeguard against infection.

There are not a few popular opinions, in regard to which it is useful at times to ask a question or two. For example, it is commonly thought that children must have what are commonly called "children's epidemics," "current contagions," etc.—in other words, that they are born to have measles, whooping-cough, perhaps even scarlet fever, just as they are born to cut their teeth, if they live.

Now, do tell us, why must a child have measles?

Oh, because, you say, we can not keep it from infection—other children have measles, and it must take them, and it is safer that it should.

But why must other children have measles? And if they have, why must yours have them too?

If you believed in and observed the laws for preserving the health of houses, which inculcate cleanliness, ventilation, white-washing, and other means—and which, by the way, *are laws*—as implicitly as you believe in the popular opinion—for it is nothing more than an opinion, that your child must have children's epidemics—don't you think that, upon the whole, your child would be more likely to escape altogether?

III. PETTY MANAGEMENT.

All the results of good nursing, as detailed in these notes, may be spoiled or utterly negatived by one defect, viz: in petty management, or in other words, by not knowing how to manage that what you do when you are there, shall be done when you are not there. The most devoted friend or nurse can not be always *there*. Nor is it desirable that she should. And she may give up her health, all her other duties, and yet, for want of a little management, be not one-half so efficient as another who is not one-half so devoted, but who has this art of multi-

plying herself—that is to say, the patient of the first will not really be so well eared for as the patient of the second.

It is as impossible, in a book, to teach a person in charge of sick, how to *manage*, as it is to teach her how to nurse. Circumstances must vary with each different case. But it is possible to press upon her to think for herself. Now, what does happen during my absence? I am obliged to be away on Tuesday. But fresh air, or punctuality, is not less important to my patient on Tuesday than it was on Monday. Or, at 10 P. M., I am never with my patient; but quiet is of no less consequence to him at 10, than it was at five minutes to 10.

Curious as it may seem, this very obvious consideration occurs comparatively to few, or, if it does occur, it is only to cause the devoted friend or nurse to be absent fewer hours or fewer minutes from her patient—not to arrange so as that no minute and no hour shall be for her patient without the essentials of her nursing.

A very few instances will be sufficient, not as precepts, but as illustrations.

A strange washerwoman, coming late at night for the “things,” will burst in, by mistake, to the patient’s sick-room, after he has fallen into his first doze, giving him a shock, the effects of which are irremedial, though he himself laughs at the cause, and probably never even mentions it. The nurse who is, and is quite right to be, at her supper, has not provided that the washerwoman shall not lose her way and go into the wrong room.

The patient’s room may always have the window open. But the passage outside the patient’s room, though provided with several large windows, may never have one open. Because it is not understood that the charge of the sick-room extends to the charge of the passage. And thus, as often happens, the nurse makes it her business to turn the patient’s room into a ventilating shaft for the foul air of the whole house.

An uninhabited room, a newly-painted room,* an uncleaned closet, or cupboard, may often become the reservoir of foul air for the whole house, because the person in charge never thinks of arranging that these places shall be always aired, always cleaned; she merely opens the window herself "when she goes in."

An agitating letter or message may be delivered, or an important letter or message *not* delivered; a visitor whom it was of consequence to see, may be refused, or one whom it was of still more consequence to *not* see, may be admitted—because the person in charge has never asked herself this question, what is done when I am not there? †

At all events, one may safely say, a nurse can not be with the patient, open the door, eat her meals, take a message, all at one and the same time. Nevertheless, the person in charge never seems to look the impossibility in the face.

Add to this that the *attempting* this impossibility does more to increase the poor patient's hurry and nervousness than anything else.

* That excellent paper, the *Builder*, mentions the lingering of the smell of paint for a month about a house as a proof of want of ventilation. Certainly, and, where there are ample windows to open, and these are never opened to get rid of the smell of paint, it is proof of want of management in using the means of ventilation. Of course, the smell will then remain for months. Why should it go?

† Why should you let your patient ever be surprised, except by thieves? I do not know. In England, people do not come down the chimney, or through the window, unless they are thieves. They come in by the door, and somebody must open the door to them. The "somebody" charged with opening the door, is one of two, three, or at most four persons. Why can not these, at most four persons, be put in charge as to what is to be done when there is a ring at the door-bell?

The sentry at a post is changed much oftener than any servant at a private house or institution can possibly be. But what should we think of such an excuse as this: that the enemy had entered such a post because A and not B had been on guard? Yet I have constantly heard such an excuse made in the private house or institution, and accepted, viz: that such a person had been "let in," or not "let in," and such a parcel had been wrongly delivered or lost because A and not B had opened the door

It is never thought that the patient remembers these things, if you do not. He has not only to think whether the visit or letter may arrive, but whether you will be in the way at the particular day and hour when it may arrive. So that your *partial* measures for "being in the way" yourself, only increase the necessity for his thought. Whereas, if you could but arrange that the thing should always be done, whether you are there or not, he need never think at all about it.

For the above reasons, whatever a patient *can* do for himself, it is better, *i. e.*, less anxiety, for him to do for himself, unless the person in charge has the spirit of management.

It is evidently much less exertion for a patient to answer a letter for himself by return of post, than to have four conversations, wait five days, have six anxieties before it is off his mind, before the person who has to answer it has done so.

Apprehension, uncertainty, waiting, expectation, fear of surprise, do a patient more harm than any exertion. Remember, he is face to face with his enemy all the time, internally wrestling with him, having long imaginary conversations with him. You are thinking of something else. "Rid him of his adversary quickly," is a first rule with the sick.*

For the same reasons, always tell a patient, and tell him beforehand, when you are going out, and when you will be back, whether it is for a day, an hour, or ten minutes. You fancy, perhaps, that it is better for him if he does not find out your going at all, better for him if you do not make yourself "of too much importance" to him

* There are many physical operations where, *ceteris paribus*, the danger is in a direct ratio to the time the operation lasts; and, *ceteris paribus*, the operator's success will be in direct ratio to his quickness. Now, there are many mental operations where exactly the same rule holds good with the sick; *ceteris paribus*, their capability of bearing such operations depends directly on the quickness, without hurry, with which they can be got through.

or else you can not bear to give him the pain or the anxiety of the temporary separation.

No such thing. You *ought* to go, we will suppose. Health or duty requires it. Then say so to the patient openly. If you go without his knowing it, and he finds it out, he never will feel secure again that the things which depend upon you will be done when you are away, and, in nine cases out of ten, he will be right. If you go out without telling him when you will be back, he can take no measures nor precautions as to the things which concern you both, or which you do for him.

If you look into the reports of trials or accidents, and especially of suicides, or into the medical history of fatal cases, it is almost incredible how often the whole thing turns upon something which has happened because "he," or still oftener "she," "was not there." But, it is still more incredible how often, how almost always this is accepted as a sufficient reason, a justification; why, the very fact of the thing having happened, is the proof of its not being a justification. The person in charge was quite right not to be "*there*," he was called away for quite sufficient reason, or he was away for a daily recurring and unavoidable cause; yet no provision was made to supply his absence. The fault was not in his "being away," but in there being no management to supplement his "being away." When the sun is under a total eclipse, or during his nightly absence, we light candles. But it would seem as if it did not occur to us that we must also supplement the person in charge of sick or of children, whether under an occasional eclipse or during a regular absence.

In institutions where many lives would be lost, and the effect of such want of management would be terrible and patent, there is less of it than in the private house.*

* So true is this that I could mention two cases of women of very high position, both of whom died in the same way, of the consequences of a surgical operation. And in both cases I was told, by the highest authority, that the fatal result would not have happened in a London hospital.

But in both, let whoever is in charge, keep this simple question in her head (*not*, how can I always do this right

But, as far as regards the art of petty management in hospitals, all the military hospitals I know must be excluded. Upon my own experience I stand, and I solemnly declare that I have seen or known of fatal accidents, such as suicides in delirium tremens, bleeding to death, dying patients dragged out of bed by drunken medical staff corps men, and many other things less patent and striking, which would not have happened in London civil hospitals nursed by women. The medical officers should be absolved from all blame in these accidents. How can a medical officer mount guard all day and all night over a patient (say) in delirium tremens? The fault lies in there being no organized system of attendance. Were a trustworthy man in charge of each ward, or set of wards, not as office clerk, but as head nurse (and head nurse the best hospital serjeant, or ward master, is not now, and can not be, from default of the proper regulations), the thing would not, in all probability, have happened. But were a trustworthy woman in charge of the ward, or set of wards, the thing would not, in all certainty, have happened. In other words, it does not happen where a trustworthy woman is really in charge.

And, in these remarks, I by no means refer only to exceptional times of great emergency in war hospitals, but also, and quite as much, to the ordinary run of military hospitals at home, in time of peace; or to a time in war when our army was actually more healthy than at home in peace, and the pressure on our hospitals consequently much less.

It is often said that, in regimental hospitals, patients ought to "nurse each other," because the number of sick altogether being, say, but thirty, and out of these one only, perhaps, being seriously ill, and the other twenty-nine having little the matter with them, and nothing to do, they should be set to nurse the one; also, that soldiers are so trained to obey, that they will be the most obedient, and therefore the best of nurses, add to which they are always kind to their comrades.

Now, have those who say this, considered that, in order to obey, you must know how to obey, and that these soldiers certainly do not know how to obey in nursing? I have seen these "kind" fellows (and how kind they are no one knows so well as myself), move a comrade so that, in one case, at least, the man died in the act. I have seen the comrades' "kindness" produce abundance of spirits, to be drunk in secret. Let no one understand by this that female nurses ought to, or could be introduced in regimental hospitals. It would be most undesirable, even were it not impossible. But the head nurseship of a hospital serjeant is the more essential, the more important, the more inexperienced the nurses. Undoubtedly, a London hospital "sister" does sometimes set relays of patients to watch a critical case; but, undoubtedly, also, always under her own superintendence; and she is called to whenever there is something to be done, and she knows how to do it. The patients are not left to do it of their own unassisted genius, however kind and willing they may be.

thing myself, but), how can I provide for this right thing to be always done?

Then, when anything wrong has actually happened in consequence of her absence, which absence we will suppose to have been quite right, let her question still be (*not*, how can I provide against any more of such absences? which is neither possible nor desirable, but), how can I provide against anything wrong arising out of my absence?

How few men, or even women, understand, either in great or in little things, what it is the being "in charge"—I mean, know how to carry out a "charge." From the most colossal calamities, down to the most trifling accidents, results are often traced (or, rather, *not* traced), to such want of some one "in charge," or of his knowing how to be "in charge." A short time ago the bursting of a funnel-casing on board the finest and strongest ship that ever was built, on her trial trip, destroyed several lives, and put several hundreds in jeopardy—not from any undetected flaw in her new and untried works—but from a tap being closed which ought not to have been closed—from what every child knows would make its mother's tea-kettle burst. And this simply because no one seemed to know what it is to be "in charge," or *who* was in charge. Nay, more, the jury at the inquest actually altogether ignored the same, and apparently considered the tap "in charge," for they gave as a verdict "accidental death."

This is the meaning of the word, on a large scale. On a much smaller scale, it happened, a short time ago, that an insane person burned herself slowly, and intentionally, to death, while in her doctor's charge, and almost in her nurse's presence. Yet neither was considered "at all to blame." The very fact of the accident happening, proves its own case. There is nothing more to be said. Either they did not know their business, or they did not know how to perform it.

To be "in charge," is certainly not only to carry out the proper measures yourself, but to see that every one else does so too; to see that no one either willfully or ignorantly thwarts or prevents such measures. It is neither to do every thing yourself, nor to appoint a number of people to each duty, but to insure that each does that duty to which he is appointed. This is the meaning which must be attached to the word by (above all) those "in charge" of sick, whether of numbers or of individuals (and, indeed, I think it is with individual sick that it is least understood. One sick person is often waited on by four with less precision, and is really less cared for than ten who are waited on by one; or at least than forty who are waited on by four; and all for want of this one person "in charge.")

It is often said that there are few good servants now; I say there are few good mistresses now. As the jury seems to have thought the tap was in charge of the ship's safety, so mistresses now seem to think the house is in charge of itself. They neither know how to give orders, nor how to teach their servants to obey orders—*i. e.*, to obey intelligently, which is the real meaning of all discipline.

Again, people who are in charge, often seem to have a pride in feeling that they will be "missed," that no one can understand or carry on their arrangements, their system, books, accounts, etc., but themselves. It seems to me that the pride is rather in carrying on a system, in keeping stores, closets, books, accounts, etc., so that any

NOTE.—It is often complained, that professional nurses, brought into private families, in case of sickness, make themselves intolerable by "ordering about" the other servants, under plea of not neglecting the patient. Both things are true; the patient is often neglected, and the servants are often unfairly "put upon." But the fault is generally in the want of management of the head in charge. It is surely for her to arrange both that the nurse's place is, when necessary, supplemented, and that the patient is never neglected—things with a little management quite compatible, and indeed only attainable together. It is certainly not for the nurse to "order about" the servants.

body can understand and carry them on—so that, in case of absence or illness, one can deliver every thing up to others, and know that all will go on as usual, and that one shall never be missed.

IV. NOISE.

Unnecessary noise, or noise that creates an expectation in the mind, is that which hurts a patient. It is rarely the loudness of the noise, the effect upon the organ of the ear itself, which appears to affect the sick. How well a patient will generally bear, *e. g.*, the putting up of a scaffolding close to the house, when he can not bear the talking, still less the whispering, especially if it be of a familiar voice, outside his door.

There are certain patients, no doubt, especially where there is slight concussion or other disturbance of the brain, who are affected by mere noise. But intermittent noise, or sudden and sharp noise, in these as in all other cases, affects far more than continuous noise—noise with jar far more than noise without. Of one thing you may be certain, that anything which wakes a patient suddenly out of his sleep, will invariably put him into a state of greater excitement, do him more serious, aye, and lasting mischief, than any continuous noise, however loud.

Never to allow a patient to be waked, intentionally or accidentally, is a *sine qua non* of all good nursing. If he is roused out of his first sleep, he is almost certain to have no more sleep. It is a curious but quite intelligible fact that, if a patient is waked after a few hours' instead of a few minutes' sleep, he is much more likely to sleep again. Because pain, like irritability of brain, perpetuates and intensifies itself. If you have gained a respite of either in sleep, you have gained more than the mere respite. Both the probability of recurrence and of the same intensity will be diminished; whereas, both will be terribly increased by want of sleep. This is the reason why sleep is so all-important. This is the reason why a patient,

waked in the early part of his sleep, loses not only his sleep, but his power to sleep. A healthy person who allows himself to sleep during the day, will lose his sleep at night. But it is exactly the reverse with the sick generally; the more they sleep, the better will they be able to sleep.

I have often been surprised at the thoughtlessness (resulting in cruelty, quite unintentionally) of friends or of doctors, who will hold a long conversation just in the room or passage adjoining to the room of the patient, who is either every moment expecting them to come in, or who has just seen them, and knows they are talking about him. If he is an amiable patient, he will try to occupy his attention elsewhere and not to listen; and this makes matters worse; for the strain upon his attention, and the effort he makes, are so great, that it is well if he is not worse for hours after. If it is a whispered conversation in the same room, then it is absolutely cruel; for it is impossible that the patient's attention should not be involuntarily strained to hear. Walking on tip-toe, doing anything in the room very slowly, are injurious, for exactly the same reasons. A firm, light, quick step, a steady, quick hand are the desiderata—not the slow, lingering, shuffling foot—the timid, uncertain touch. Slowness is not gentleness, though it is often mistaken for such—quickness, lightness, and gentleness are quite compatible. Again, if friends and doctors did but watch, as nurses can and should watch, the features sharpening, the eyes growing almost wild, of fever-patients who are listening for the entrance from the corridor of the persons whose voices they are hearing there, these would never run the risk again of creating such expectation, or irritation of mind. Such unnecessary noise has undoubtedly induced or aggravated delirium in many cases. I have known such—in one case death ensued. It is but fair to say that this death was attributed to fright. It was the result of a long-whispered conversation, within sight of the patient,

about an impending operation; but any one who has known the more than stoicism, the cheerful coolness, with which the certainty of an operation will be accepted by any patient, capable of bearing an operation at all, if it is properly communicated to him, will hesitate to believe that it was mere fear which produced, as was averred, the fatal result in this instance. It was rather the uncertainty, the strained expectation as to what was to be decided upon.

I need hardly say that the other common cause, namely, for a doctor or friend to leave the patient and communicate his opinion on the result of his visit to the friends just outside the patient's door, or in the adjoining room, after the visit, but within hearing or knowledge of the patient, is, if possible, worst of all.

It is, I think, alarming, peculiarly at this time, when the female ink-bottles are perpetually impressing upon us "woman's" "particular worth and general missionariness," to see that the dress of women is daily more and more unfitting them for any "mission," or usefulness at all. It is equally unfitted for all poetic and all domestic purposes. A man is now a more handy and far less objectionable being in a sick room than a woman. Compelled by her dress, every woman now either shuffles or waddles—only a man can cross the floor of a sick-room without shaking it! What is become of woman's light step—the firm, light, quick step we have been asking for?

Unnecessary noise, then, is the most cruel absence of care which can be inflicted either on sick or well. For, in all these remarks, the sick are only mentioned as suffering in a greater proportion than the well from precisely the same causes.

Unnecessary (although slight) noise injures a sick person much more than necessary noise (of a much greater amount.)

All doctrines about mysterious affinities and aversions

will be found to resolve themselves very much, if not entirely, into presence or absence of care in these things.

A nurse who rustles (I am speaking of nurses professional and unprofessional) is the horror of a patient, though perhaps he does not know why.

The fidget of silk and crinoline, the rattling of keys, the creaking of stays and of shoes, will do a patient more harm than all the medicines in the world will do him good.

The noiseless step of woman, the noiseless drapery of woman, are mere figures of speech in this day. Her skirts (and well if they do not throw down some piece of furniture) will at least brush against every article in the room as she moves.*

Again, one nurse can not open the door without making every thing rattle; or she opens the door unnecessarily often, for want of remembering all the articles that might be brought in at once.

A good nurse will always make sure that no door or window in her patient's room shall rattle or creak; that no blind or curtain shall, by any change of wind through the open window, be made to flap; especially will she be careful of all this before she leaves her patients for the night. If you wait till your patients tell you, or remind you of these things, where is the use of their having a nurse? There are more shy than exacting patients, in all classes; and many a patient passes a bad night, time after

* Fortunate it is if her skirts do not catch fire; and if the nurse does not give herself up a sacrifice, together with her patient, to be burnt in her own petticoats. I wish the Registrar-General would tell us the exact number of deaths by burning occasioned by this absurd and hideous custom. But if people will be stupid, let them take measures to protect themselves from their own stupidity—measures which every chemist knows, such as putting alum into starch, which prevents starched articles of dress from blazing up.

I wish, too, that people who wear crinoline could see the indecency of their own dress as other people see it. A respectable elderly woman stooping forward, invested in crinoline, exposes quite as much of her own person to the patient lying in the room as any opera dancer does on the stage; but no one will ever tell her this unpleasant truth.

time, rather than remind his nurse every night of all the things she has forgotten.

If there are blinds to your windows, always take care to have them well up, when they are not being used. A little piece slipping down, and flapping with every draught, will distract a patient.

All hurry or bustle is peculiarly painful to the sick, and when a patient has compulsory occupations to engage him, instead of having simply to amuse himself, it becomes doubly injurious. The friend who remains standing and fidgeting about while a patient is talking business to him; or the friend who sits and prosed—the one from an idea of not letting the patient talk, the other from an idea of amusing him—each is equally inconsiderate. Always sit down when a sick person is talking business to you, show no signs of hurry, give complete attention and full consideration if your advice is wanted, and go away the moment the subject is ended.

Always sit within the patient's view, so that when you speak to him he has not painfully to turn his head round in order to look at you. Everybody involuntarily looks at the person speaking. If you make this act a wearisome one on the part of the patient, you are doing him harm. So also if by continuing to stand you make him continuously raise his eyes to see you. Be as motionless as possible, and never gesticulate in speaking to the sick.

Never make a patient repeat a message or request, especially if it be sometime after. Occupied patients are often accused of doing too much of their own business. They are instinctively right. How often you hear the person, charged with the request of giving the message or writing the letter, say, half an hour afterwards to the patient, "Did you appoint twelve o'clock?" or, "What did you say was the address?" or ask perhaps some much more agitating question, thus causing the patient the effort of memory, or worse still of decision, all over again. It is really less exertion to him to write his letters him-

self. This is almost the universal experience of occupied invalids.

This brings us to another caution. Never speak to an invalid from behind, nor from the door, nor from any distance from him, nor when he is doing anything.

The official politeness of servants in these things is so grateful to invalids, that many prefer, without knowing why, having none but servants about them.

These things are not fancy. If we consider that, with sick as with well, every thought decomposes some nervous matter—that decomposition as well as re-composition of nervous matter is always going on, and more quickly with the sick than with the well—that to obtrude abruptly another thought upon the brain while it is in the act of destroying nervous matter by thinking, is calling upon it to make a new exertion—if we consider these things, which are facts, not fancies, we shall remember that we are doing positive injury by interrupting, by “startling a fanciful person,” as it is called. Alas! it is no fancy.

If the invalid is forced, by his avocations, to continue occupations requiring much thinking, the injury is doubly great. In feeding a patient suffering under delirium or stupor, you may suffocate him by giving him his food suddenly; but if you rub his lips gently with a spoon, and thus attract his attention, he will swallow the food unconsciously, but with perfect safety. Thus it is with the brain. If you offer it a thought, especially one requiring a decision, abruptly, you do it a real not fanciful injury. Never speak to a sick person suddenly; but, at the same time, do not keep his expectation on the tiptoe.

This rule, indeed, applies to the well quite as much as to the sick. I have never known persons who exposed themselves for years to constant interruption, who did not muddle away their intellects by it at last. The process with them may be accomplished without pain—with the sick pain gives warning of the injury.

Do not meet or overtake a patient who is moving about in order to speak to him, or to give him any message or letter; you might just as well give him a box on the ear. I have seen a patient fall flat on the ground who was standing when his nurse came into the room. This was an accident which might have happened to the most careful nurse; but the other is done with intention. A patient in such a state is not going to the East Indies. If you would wait ten seconds, or walk ten yards further, any promenade he could make would be over. You do not know the effort it is to a patient to remain standing for even a quarter of a minute to listen to you. If I had not seen the thing done by the kindest nurses and friends, I should have thought this caution quite superfluous.*

Patients are often accused of being able to "do much more when nobody is by." It is quite true that they can. Unless nurses can be brought to attend to considerations of the kind of which we have given here but a few specimens, a very weak patient finds it really much less exertion to do things for himself than to ask for them. And he will, in order to do them, (very innocently and from instinct) calculate the time his nurse is likely to be absent, from a fear of her "coming in upon" him or speaking to him, just at the moment when he finds it quite as much as he can do to crawl from his bed to his chair, or from one room to another, or down stairs, or out of doors for a few minutes. Some extra call made upon his attention

* It is absolutely essential that a nurse should lay this down as a positive rule to herself, never to speak to any patient who is standing or moving, as long as she exercises so little observation as not to know when a patient can not bear it. I am satisfied that many of the accidents which happen from feeble patients tumbling down stairs, fainting after getting up, etc., happen solely from the nurse popping out of a door to speak to the patient just at that moment; or from his fearing that she will do so. And if the patient were even left to himself, till he can sit down, such accidents would much seldomer occur. If the nurse accompanies the patient, let her not call upon him to speak. It is incredible that nurses can not picture to themselves the strain upon the heart, the lungs, and the brain, which the act of moving is to any feeble patient.

at that moment will quite upset him. In these cases you may be sure that a patient in the state we have described does not make such exertions more than once or twice a day, and probably much about the same hour every day. And it is hard, indeed, if nurse and friends cannot calculate so as to let him make them undisturbed. Remember, that many patients can walk who cannot stand or even sit up. Standing is, of all positions, the most trying to a weak patient.

Everything you do in a patient's room, after he is "put up" for the night, increases tenfold the risk of his having a bad night. But, if you rouse him up after he has fallen asleep, you do not risk, you secure him a bad night.

One hint I would give to all who attend or visit the sick, to all who have to pronounce an opinion upon sickness or its progress. Come back and look at your patient *after* he has had an hour's animated conversation with you. It is the best test of his real state we know. But never pronounce upon him from merely seeing what he does, or how he looks, during such a conversation. Learn also carefully and exactly, if you can, how he passed the night after it.

People rarely, if ever, faint while making an exertion. It is after it is over. Indeed, almost every effect of over-exertion appears after, not during such exertion. It is the highest folly to judge of the sick, as is so often done, when you see them merely during a period of excitement. People have very often died of that which, it has been proclaimed at the time, has "done them no harm."*

*As an old experienced nurse, I do most earnestly deprecate all such careless words. I have known patients delirious all night, after seeing a visitor who called them "better," thought they "only wanted a little amusement," and who came again, saying, "I hope you are not the worse for my visit," neither waiting for an answer, nor even looking at the case. No real patient will ever say, "Yes, but I was a great deal the worse."

It is not, however, either death or delirium of which, in these cases, there is most danger to the patient. Unperceived consequences are far more likely to ensue. You will have impunity—the patient will not. That is, the patient

Remember never to lean against, sit upon, or unnecessarily shake, or even touch the bed in which a patient lies. This is invariably a painful annoyance. If you shake the chair on which he sits, he has a point by which to steady himself, in his feet. But on a bed or sofa, he is entirely at your mercy, and he feels every jar you give him all through him.

In all that we have said, both here and elsewhere, let it be distinctly understood that we are not speaking of hypochondriacs. To distinguish between real and fancied disease forms an important branch of the education of a nurse. To manage fancy patients forms an important branch of her duties. But the nursing which real and that which fancied patients require is of different, or rather of opposite, character. And the latter will not be spoken of here. Indeed, many of the symptoms which are here mentioned are those which distinguish real from fancied disease.

It is true that hypochondriacs very often do that behind a nurse's back which they would not do before her face. Many such I have had as patients who scarcely ate anything at their regular meals; but if you concealed food for them in a drawer, they would take it at night or in secret. But this is from quite a different motive. They do it from the wish to conceal. Whereas the real patient will often boast to his nurse or doctor, if these do not shake their heads at him, of how much he has done, or eaten, or walked. To return to real disease.

Conciseness and decision, are above all things, necessary with the sick. Let your thought expressed to them be concisely and decidedly expressed. What doubt and hesitation there may be in your own mind must never be communicated to theirs, not even (I would rather say

will suffer, although neither he nor the inflictor of the injury will attribute it to its real cause. It will not be directly traceable, except by a very careful observant nurse. The patient will often not even mention what has done him most harm.

especially not) in little things. Let your doubt be to yourself, your decision to them. People who think outside their heads, the whole process of whose thought appears, like Homer's, in the act of secretion, who tell everything that led them towards this conclusion and away from that, ought never to be with the sick.

Irresolution is what all patients most dread. Rather than meet this in others, they will collect all their data, and make up their minds for themselves. A change of mind in others, whether it is regarding an operation, or re-writing a letter, always injures the patient more than the being called upon to make up his mind to the most dreaded or difficult decision. Farther than this, in very many cases, the imagination in disease is far more active and vivid than it is in health. If you propose to the patient change of air to one place one hour, and to another the next, he has, in each case, immediately constituted himself in imagination the tenant of the place, gone over the whole premises in idea, and you have tired him as much by displacing his imagination, as if you had actually carried him over both places.

Above all, leave the sick room quickly and come into it quickly, not suddenly, not with a rush. But don't let the patient be wearily waiting for when you will be out of the room or when you will be in it. Conciseness and decision in your movements, as well as your words, are necessary in the sick room, as necessary as absence of hurry and bustle. To possess yourself entirely will ensure you from either failing—either loitering or hurrying.

If a patient has to see, not only to his own but also to his nurse's punctuality, or perseverance, or readiness, or calmness—to any or all of these things, he is far better without that nurse than with her, however valuable and handy her services may otherwise be to him, and however incapable he may be of rendering them to himself.

With regard to reading aloud in the sick-room, my experience is, that when the sick are too ill to read to them-

selves, they can seldom bear to be read to. Children, eye-patients, and uneducated persons are exceptions, or where there is any mechanical difficulty in reading. People who like to be read to, have generally not much the matter with them; while in fevers, or where there is much irritability of brain, the effort of listening to reading aloud has often brought on delirium. I speak with great diffidence, because there is an almost universal impression that it is *sparing* the sick to read aloud to them. But two things are certain :

(1.) If there is some matter which *must* be read to a sick person, do it slowly. People often think that the way to get it over with the least fatigue to him is to get it over in least time. They gabble; they plunge and gallop through the reading. There never was a greater mistake. Houdin, the conjuror, says that the way to make a story seem short is to tell it slowly. So it is with reading to the sick. I have often heard a patient say to such a mistaken reader, "Don't read it to me; tell it me."* Unconsciously he is aware that this will regulate the plunging, the reading with unequal paces, slurring over one part, instead of leaving it out altogether, if it is unimportant, and mumbling another. If the reader lets his own attention wander, and then stops to read up to himself, or finds he has read the wrong bit, then it is all over with the poor patient's chance of not suffering. Very few people know how to read to the sick; very few read aloud as pleasantly even as they speak. In reading they sing, they hesitate, they stammer, they hurry, they mumble; when in speaking they do none of these things. Reading aloud to the sick ought always to be rather slow, and exceedingly distinct, but not mouthing—rather monotonous, but not sing-song; rather loud, but not noisy; and, above all, not too long. Be very sure of what your patient can bear.

* Sick children, if not too shy to speak, will always express this wish. They invariably prefer a story to be told to them, rather than read to them.

(2.) The extraordinary habit of reading to oneself in a sick room, and reading aloud to the patient any bits which will amuse him, or more often the reader, is unaccountably thoughtless. What *do* you think the patient is thinking of during your gaps of non-reading? Do you think that he amuses himself upon what you have read for precisely the time it pleases you to go on reading to yourself, and that his attention is ready for something else at precisely the time it pleases you to begin reading again? Whether the person thus read to be sick or well, whether he be doing nothing or doing something else while being thus read to, the self-absorption and want of observation of the person who does it, is equally difficult to understand, although very often the *readee* is too amiable to say how much it hurts him.

One thing more: From the flimsy manner in which most modern houses are built, where every step on the stairs, and along the floors, is felt all over the house; the higher the story, the greater the vibration. It is inconceivable how much the sick suffer by having anybody overhead. In the solidly built old houses, which, fortunately, most hospitals are, the noise and shaking are comparatively trifling. But it is a serious cause of suffering in lightly built houses, and with the irritability peculiar to some diseases. Better far put such patients at the top of the house, even with the additional fatigue of stairs, if you can not secure the room above them being untenanted; you may otherwise bring on a state of restlessness which no opium will subdue. Do not neglect the warning when the patient tells you that he "feels every step above him to cross his heart." Remember that every noise a patient can not see partakes of the character of suddenness to him; and I am persuaded that patients with these peculiarly irritable nerves, are positively less injured by having persons in the same room with them than overhead, or separated by only a thin compartment. Any sacrifice to secure silence for these cases is worth while, because no

air, however good, no attendance, however careful, will do anything for such cases without quiet.

V. VARIETY.

To any but an old nurse, or an old patient, the degree would be quite inconceivable to which the nerves of the sick suffer from seeing the same walls, the same ceiling, the same surroundings, during a long confinement to one or two rooms.

The superior cheerfulness of persons suffering severe paroxysms of pain over that of persons suffering from nervous debility, has often been remarked upon, and attributed to the enjoyment of the former of their intervals of respite. I incline to think that the majority of cheerful cases is to be found among those patients who are not confined to one room, whatever their suffering, and that the majority of depressed cases will be seen among those subjected to a long monotony of objects about them.

The nervous frame really suffers as much from this as the digestive organs from long monotony of diet, as *e. g.*, the soldier from his twenty-one years' "boiled beef."

The effect in sickness of beautiful objects, and especially of brilliancy of color, is hardly at all appreciated.

Such cravings are usually called the "fancies" of patients. And often, doubtless, patients have "fancies," as *e. g.*, when they desire two contradictions. But much more often their so-called "fancies" are the most valuable indications of what is necessary for their recovery; and it would be well if nurses would watch these so-called "fancies" closely.

NOTE.—The effect of music upon the sick has been scarcely at all noticed. In fact, its expensiveness, as it is now, makes any general application of it quite out of the question. I will only remark here, that wind instruments, including the human voice, and stringed instruments, capable of continuous sound, have generally a beneficent effect; while the piano-forte, with such instruments as have no continuity of sound, has just the reverse. The finest piano-forte playing will damage the sick, while an air, like "Home, sweet

I have seen, in fevers (and felt, when I was a fever patient myself), the most acute suffering produced from the patient (in a hut) not being able to see out of window, and the knots in the wood being the only view. I shall never forget the rapture of fever patients over a bunch of bright-colored flowers. I remember (in my own case) a nosegay of wild flowers being sent me, and from that moment recovery becoming more rapid.

People say the effect is only on the mind. It is no such thing. The effect is on the body, too. Little as we know about the way in which we are affected by form, by color, and light, we do know this, that they have an actual physical effect.

Variety of form and brilliancy of color in the objects presented to patients, are actual means of recovery.

But it must be *slow* variety, *e. g.*, if you shew a patient ten or twelve engravings successively, ten to one that he does not become cold and faint, or feverish, or even sick; but hang one up opposite him, one on each successive day, or week, or month, and he will revel in the variety.

The folly and ignorance which reign too often supreme over the sick-room, can not be better exemplified than by this. While the nurse will leave the patient stewing in a corrupting atmosphere, the best ingredient of which is carbonic acid; she will deny him, on the plea of unhealthiness, a glass of cut-flowers, or a growing plant. Now, no one ever saw "overcrowding" by plants in a room or ward. And the carbonic acid they give off at nights would not poison a fly. Nay, in overcrowded rooms, they actually absorb carbonic acid, and give off oxygen. Cut-flowers also decompose water and produce oxygen gas. It is true there are certain flowers, *e. g.*, lilies, the smell of which is said to depress the nervous system. These are easily known by the smell, and can be avoided.

heme," or "Assisa a pie d'un salice," on the most ordinary grinding organ will sensibly soothe them—and this quite independent of association.

Volumes are now written and spoken upon the effect of the mind upon the body. Much of it is true. But I wish a little more was thought of the effect of the body on the mind. You who believe yourselves overwhelmed with anxieties, but are able every day to walk up Regent street, or out in the country, to take your meals with others in other rooms, etc., you little know how much your anxieties are thereby lightened; you little know how intensified they become to those who can have no change;* how the very walls of their sick rooms seem hung with their cares; how the ghosts of their troubles haunt their beds; how impossible it is for them to escape from a pursuing thought without some help from variety.

A patient can just as much move his leg when it is fractured, as change his thoughts when no external help from variety is given him. This is, indeed, one of the main sufferings of sickness; just as the fixed posture is one of the main sufferings of the broken limb.

It is an ever recurring wonder to see educated people, who call themselves nurses, acting thus. They vary their own objects, their own employments, many times a day; and while nursing (!) some bed-ridden sufferer, they let him lie there staring at a dead wall, without any change of object to enable him to vary his thoughts; and it never even occurs to them, at least to move his bed so that he can look out of window. No, the bed is to be always left in the darkest, dullest, remotest part of the room.†

* It is a matter of painful wonder to the sick themselves, how much painful ideas predominate over pleasurable ones in their impressions; they reason with themselves; they think themselves ungrateful; it is all of no use. The fact is, that these painful impressions are far better dismissed by a real laugh, if you can excite one by books or conversation, than by any direct reasoning; or if the patient is too weak to laugh, some impression from nature is what he wants. I have mentioned the cruelty of letting him stare at a dead wall. In many diseases, especially in convalescence from fever, that wall will appear to make all sorts of faces at him; now flowers never do this. Form, color, will free your patient from his painful ideas better than any argument.

† I remember a case in point. A man received an injury to the spine, from an accident, which, after a long confinement, ended in death. He was a

I think it is a very common error among the well to think that "with a little more self-control" the sick might, if they choose, "dismiss painful thoughts" which "aggravate their disease," etc. Believe me, almost *any* sick person, who behaves decently well, exercises more self-control every moment of his day, than you will ever know till you are sick yourself. Almost every step that crosses his room, is painful to him; almost every thought that crosses his brain is painful to him: and if he can speak without being savage, and look without being unpleasant, he is exercising self-control.

Suppose you have been up all night, and instead of being allowed to have your cup of tea, you were to be told that you ought to "exercise self-control," what should you say? Now, the nerves of the sick are always in the state that yours are in after you have been up all night.

We will suppose the diet of the sick to be cared for. Then, this state of nerves is most frequently to be relieved by care in affording them a pleasant view, a judicious variety as to flowers,* and pretty things. Light by itself will often relieve it. The cravings for "the return of day," which the sick so constantly evince, is generally nothing but the desire for light, the remembrance of the

workman, had not in his composition a single grain of what is called "enthusiasm for nature," but he was desperate to "see once more out of window." His nurse actually got him on her back, and managed to perch him up at the window for an instant, to see out. The consequence to the poor nurse was a serious illness, which nearly proved fatal. The man never knew it; but a great many other people did. Yet the consequence in none of their minds, so far as I know, was the conviction that the craving for variety in the starving eye, is just as desperate as that of food in the starving stomach, and tempts the famishing creature in either case to steal for its satisfaction. No other word will express it but desperation. And it sets the seal of ignorance and stupidity just as much on the governors and attendants of the sick, if they do not provide the sick bed with a "view" of some kind, as if they did not provide the hospital with a kitchen.

* No one who has watched the sick, can doubt the fact, that some feel stimulus from looking at scarlet flowers, exhaustion from looking at deep blue, etc.

relief which a variety of objects before the eye affords to the harassed sick mind.

Again, every man and every woman has some amount of manual employment, excepting a few fine ladies, who do not even dress themselves, and who are virtually in the same category, as to nerves, as the sick. Now, you can have no idea of the relief which manual labor is to you—of the degree to which the deprivation of manual employment increases the peculiar irritability from which many sick suffer.

A little needle-work, a little writing, a little cleaning, would be the greatest relief the sick could have, if they could do it; these *are* the greatest relief to you, though you do not know it. Reading, though it is often the only thing the sick can do, is not this relief. Bearing this in mind, bearing in mind that you have all these varieties of employment which the sick can not have, bear also in mind to obtain for them all the varieties which they can enjoy.

I need hardly say that I am well aware that excess in needle work, in writing, in any other continuous employment, will produce the same irritability that defect in manual employment, as one cause, produces in the sick.

VI. TAKING FOOD.

Every careful observer of the sick will agree in this, that thousands of patients are annually starved in the midst of plenty, from want of attention to the ways which alone make it possible for them to take food. This want of attention is as remarkable in those who urge upon the sick to do what is quite impossible to them, as in the sick themselves who will not make the effort to do what is perfectly possible to them.

For instance, to the large majority of very weak patients it is quite impossible to take any solid food before 11 A. M., nor then, if their strength is still further ex-

hausted by fasting till that hour. For weak patients have generally feverish nights, and, in the morning, dry mouths; and, if they could eat with those dry mouths, it would be the worse for them. A spoonful of beef-tea, of arrowroot and wine, of egg flip, every hour, will give them the requisite nourishment, and prevent them from being too much exhausted to take at a later hour the solid food, which is necessary for their recovery; and every patient who can swallow at all can swallow these liquid things if he chooses. But how often do we hear a mutton-chop, an egg, a bit of bacon, ordered to a patient for breakfast, to whom, as a moment's consideration would show us, it must be quite impossible to masticate such things at that hour.

Again, a nurse is ordered to give a patient a teacupful of some article of food every three hours. The patient's stomach rejects it. If so, try a tablespoonful every hour; if this will not do, a teaspoonful every quarter of an hour.

I am bound to say, that I think more patients are lost by want of care and ingenuity in these momentous minutiae in private nursing than in public hospitals; and I think there is more of the *entente cordiale* to assist one another's hands between the doctor and his head-nurse in the latter institutions, than between the doctor and the patient's friends in the private house.

If we did but know the consequences which may ensue, in very weak patients, from ten minutes' fasting or repletion, (I call it repletion when they are obliged to let too small an interval elapse between taking food and some other exertion, owing to the nurse's unpunctuality,) we should be more careful never to let this occur. In very weak patients there is often a nervous difficulty of swallowing, which is so much increased by any other call upon their strength, that, unless they have their food punctually at the minute, which minute again must be arranged so as to fall in with no other minute's occupation, they can take nothing till the next respite occurs—

so that an unpunctuality or delay of ten minutes may very well turn out to be one of two or three hours. And why is it not as easy to be punctual to a minute? Life often literally hangs upon these minutes.

In acute cases, where life or death is to be determined in a few hours, these matters are very generally attended to, especially in hospitals; and the number of cases is large where the patient is, as it were, brought back to life by exceeding care on the part of the doctor or nurse, or both, in ordering and giving nourishment with minute selection and punctuality.

But in chronic cases, lasting over months and years, where the fatal issue is often determined at last by mere protracted starvation, I had rather not enumerate the instances which I have known, where a little ingenuity, and a great deal of perseverance, might, in all probability, have averted the result. The consulting the hours when the patient can take food, the observation of the times, often varying, when he is most faint, the altering seasons of taking food, in order to anticipate and prevent such times—all this, which requires observation, ingenuity, and perseverance, (and these really constitute the good nurse,) might save more lives than we wot of.

To leave the patient's untasted food by his side, from meal to meal, in hopes that he will eat it in the interval, is simply to prevent him from taking any food at all. I have known patients literally incapacitated from taking one article of food after another, by this piece of ignorance. Let the food come at the right time, and be taken away, eaten or uneaten, at the right time; but never let a patient have "something always standing" by him, if you don't wish to disgust him of everything.

On the other hand, I have known a patient's life saved (he was sinking for want of food) by the simple question put to him by the doctor, "But is there no hour when you feel you could eat?" "Oh, yes," he said, "I could always take something at —o'clock and — o'clock."

The thing was tried and succeeded. Patients very seldom, however, can tell this—it is for you to watch and find it out.

A patient should, if possible, not see or smell either the food of others, or a greater amount of food than he himself can consume at one time, or even hear food talked about, or see it in the raw state. I know of no exception to the above rule. The breaking of it always induces a greater or less incapacity of taking food.

In hospital wards it is of course impossible to observe all this; and in single wards, where a patient must be continuously and closely watched, it is frequently impossible to relieve the attendant, so that his or her own meals can be taken out of the ward. But it is not less true that, in such cases, even where the patient is not himself aware of it, his possibility of taking food is limited by seeing the attendant eating meals under his observation. In some cases the sick are aware of it, and complain. A case where the patient was supposed to be insensible, but complained as soon as able to speak, is now present to my recollection.

Remember, however, that the extreme punctuality in well-ordered hospitals—the rule that nothing shall be done in the ward while the patients are having their meals—go far to counterbalance what unavoidable evil there is in having patients together. I have often seen the private nurse go on dusting or fidgeting about in a sick-room all the while the patient is eating, or trying to eat.

That the more alone an invalid can be when taking food, the better, is unquestionable; and, even if he must be fed, the nurse should not allow him to talk, or talk to him, especially about food, while eating.

When a person is compelled, by the pressure of occupation, to continue his business while sick, it ought to be a rule WITHOUT ANY EXCEPTION WHATEVER, that no one shall bring business to him or talk to him while he is taking

food, nor go on talking to him on interesting subjects up to the last moment before his meals, nor make an engagement with him immediately after, so that there be any hurry of mind while taking them.

Upon the observance of these rules, especially the first, often depends the patient's capability of taking food at all, or, if he is amiable and forces himself to take food, of deriving any nourishment from it.

A nurse should never put before a patient milk that is sour, meat or soup that is turned, an egg that is bad, or vegetables underdone. Yet often I have seen these things brought in to the sick in a state perfectly perceptible to every nose or eye except the nurse's. It is here that the clever nurse appears; she will not bring in the peccant article, but, not to disappoint the patient, she will whip up something else in a few minutes. Remember that sick cookery should half do the work of your poor patient's weak digestion. But if you further impair it with your bad articles, I know not what is to become of him or of it.

If the nurse is an intelligent being, and not a mere carrier of diets to and from the patient, let her exercise her intelligence in these things. How often we have known a patient to eat nothing at all in the day, because one meal was left untasted (at that time he was incapable of eating), at another the milk was sour, the third was spoiled by some other accident. And it never occurred to the nurse to extemporize some expedient,—it never occurred to her that as he had had no solid food that day he might eat a bit of toast (say) with his tea in the evening, or he might have some meat an hour earlier. A patient who cannot touch his dinner at two, will often accept it gladly, if brought to him at seven. But somehow nurses never "think of these things." One would imagine they did not consider themselves bound to exercise their judgment; they leave it to the patient. Now I am quite sure that it is better for a patient rather to suffer these neglects than to try to teach his nurse to nurse him, if she does not

know how. It ruffles him, and if he is ill he is in no condition to teach, especially upon himself. The above remarks apply much more to private nursing than to hospitals.

I would say to the nurse, have a rule of thought about your patient's diet; consider, remember how much he has had, and how much he ought to have to-day. Generally, the only rule of the private patient's diet is what the nurse has to give. It is true she cannot give him what she has not got; but his stomach does not wait for her convenience, or even her necessity.* If it is used to having its stimulus at one hour to day, and to-morrow it does not have it, because she has failed in getting it, he will suffer. She must be always exercising her ingenuity to supply defects, and to remedy accidents which will happen among the best contrivers, but from which the patient does not suffer the less, because "they cannot be helped."

One very minute caution,—take care not to spill into your patient's saucer, in other words, take care that the outside bottom rim of his cup shall be quite dry and clean; if, every time he lifts his cup to his lips, he has to carry the saucer with it, or else to drop the liquid upon, and to soil his sheet, or his bed-gown, or pillow, or if he is sitting up, his dress, you have no idea what a difference this minute want of care on your part makes to his comfort and even to his willingness for food.

* Why, because the nurse has not got some food to-day which the patient takes, can the patient wait four hours for food to-day, who could not wait two hours yesterday? Yet this is the only logic one generally hears. On the other hand, the other logic, viz., of the nurse giving a patient a thing because she has got it, is equally fatal. If she happens to have fresh jelly, or fresh fruit, she will frequently give it to the patient half an hour after his dinner, or at his dinner, when he cannot possibly eat that and the broth too—or worse still, leave it by his bed-side till he is so sickened with the sight of it, that he cannot eat it at all.

VII. WHAT FOOD.

I will mention one or two of the most common errors among women in charge of sick respecting sick diet. One is the belief that beef tea is the most nutritive of all articles. Now, just try and boil down a pound of beef into beef tea, evaporate your beef tea, and see what is left of your beef. You will find that there is barely a teaspoonful of solid nourishment to half a pint of water in beef tea;—nevertheless there is a certain reparative quality in it, we do not know what, as there is in tea;—but it may safely be given in almost any inflammatory disease, and is as little to be depended upon with the healthy or convalescent where much nourishment is required. Again, it is an ever ready saw that an egg is equivalent to a pound of meat,—whereas it is not at all so. Also, it is seldom noticed with how many patients, particularly of nervous or bilious temperament, eggs disagree. All puddings made with eggs, are distasteful to them in consequence. An egg, whipped up with wine, is often the only form in which they can take this kind of nourishment. Again, if the patient has attained to eating meat, it is supposed that to give him meat is the only thing needful for his recovery; whereas scorbutic sores have been actually known to appear among sick persons living in the midst of plenty in England, which could be traced to no other source than this, viz.: that the nurse, depending on meat alone, had allowed the patient to be without vegetables for a considerable time, these latter being so badly cooked that he always left them untouched. Arrowroot is another grand dependence of the nurse. As a vehicle for wine, and as a restorative quickly prepared, it is all very well. But it is nothing but starch and water. Flour is both more nutritive, and less liable to ferment, and is preferable wherever it can be used.

Again, milk and the preparations from milk, are a most

important article for the sick. Butter is the lightest kind of animal fat, and though it wants the sugar and some of the other elements which there are in milk, yet it is most valuable both in itself and in enabling the patient to eat more bread. Flour, oats, groats, barley, and their kind, are, as we have already said, preferable in all their preparations to all the preparations of arrowroot, sago, tapioca, and their kind. Cream, in many long chronic diseases, is quite irreplaceable by any other article whatever. It seems to act in the same manner as beef tea, and to most it is much easier of digestion than milk. In fact, it seldom disagrees. Cheese is not usually digestible by the sick, but it is pure nourishment for repairing waste; and I have seen sick, and not a few either, whose craving for cheese showed how much it was needed by them.*

But, if fresh milk is so valuable a food for the sick, the least change or sourness in it, makes it of all articles, perhaps, the most injurious; diarrhœa is a common result of fresh milk allowed to become at all sour. The nurse, therefore, ought to exercise her utmost care in this. In large institutions for the sick, even the poorest, the utmost care is exercised. Wenham lake ice is used for this express purpose every summer, while the private patient, perhaps, never tastes a drop of milk that is not sour, all through the hot weather, so little does the private nurse understand the necessity of such care. Yet, if you consider that the only drop of real nourishment in your patient's tea is the drop of milk, and how much almost

*In the diseases produced by bad food, such as scorbutic dysentery and diarrhœa, the patient's stomach often craves for and digests things, some of which would be laid down in no dietary that ever was invented for sick, and especially not for such sick. These are fruit, pickles, jams, gingerbread, fat of ham or bacon, suet, cheese, butter, milk. These cases I have seen not by ones, nor by tens, but by hundreds. And the patient's stomach was right and the book was wrong. The articles craved for, in these cases, might have been principally arranged under the two heads of fat and vegetable acids.

There is often a marked difference between men and women in this matter of sick feeding. Women's digestion is generally slower.

all the English patients depend upon their tea, you will see the great importance of not depriving your patient of this drop of milk. Buttermilk, a totally different thing, is often very useful, especially in fevers.

In laying down rules of diet, by the amounts of solid nutriment in different kinds of food, it is constantly lost sight of what the patient requires to repair his waste, what he can take and what he can't. You can not diet a patient from a book, you can not make up the human body as you would make up a prescription—so many parts carboniferous, so many parts nitrogenous, will constitute a perfect diet for the patient. The nurse's observation here will materially assist the doctor—the patient's fancies will materially assist the nurse. For instance, sugar is one of the most nutritive of all articles, being pure carbon, and is particularly recommended in some books. But the vast majority of all patients in England, young and old, male and female, rich and poor, hospital and private, dislike sweet things—while I have never known a person take to sweets when he was ill who disliked them when he was well, I have known many fond of them when in health, who in sickness would leave off anything sweet, even to sugar in tea—sweet puddings, sweet drinks, are their aversion; the furred tongue almost always likes what is sharp or pungent. Scorbutic patients are an exception, they often crave for sweetmeats and jams.

Jelly is another article of diet in great favor with nurses and friends of the sick; even if it could be eaten solid, it would not nourish, but it is simply the height of folly to take one-eighth ounce of gelatine and make it into a certain bulk by dissolving it in water, and then to give it to the sick, as if the mere bulk represented nourishment. It is now known that jelly does not nourish, that it has a tendency to produce diarrhœa—and to trust to it to repair the waste of a diseased constitution, is simply to starve the sick under the guise of feeding them. If one hundred spoonfuls of jelly were given in the course of the day,

you would have given one spoonful of gelatine, which spoonful has no nutritive power whatever.

And, nevertheless, gelatine contains a large quantity of nitrogen, which is one of the most powerful elements in nutrition; on the other hand, beef tea may be chosen as an illustration of great nutrient power in sickness, coexisting with a very small amount of solid nitrogenous matter.

Dr. Christison says that "every one will be struck with the readiness with which" certain classes of "patients will often take diluted meat juice or beef tea repeatedly, when they refuse all other kinds of food." This is particularly remarkable in "cases of gastric fever, in which," he says, "little or nothing else beside beef tea or diluted meat juice" has been taken for weeks, or even months, "and yet a pint of beef tea contains scarcely one-fourth ounce of anything but water"—the result is so striking that he asks what is its mode of action? "Not simply nutrient—one-fourth ounce of the most nutritive material can not nearly replace the daily wear and tear of the tissues in any circumstances. Possibly," he says, "it belongs to a new denomination of remedies."

It has been observed that a small quantity of beef tea, added to other articles of nutrition, augments their power out of all proportion to the additional amount of solid matter.

The reason why jelly should be innutritious, and beef tea nutritious to the sick, is a secret yet undiscovered, but it clearly shows that careful observation of the sick is the only clue to the best dietary.

Chemistry has, as yet, afforded little insight into the dieting of sick. All that chemistry can tell us is the amount of carboniferous or nitrogenous elements discoverable in different dietetic articles. It has given us lists of dietetic substances, arranged in the order of their richness in one or other of these principles; but that is all. In the great majority of cases, the stomach of the patient

is guided by other principles of selection than merely the amount of carbon or nitrogen in the diet. No doubt in this, as in other things, nature has very definite rules for her guidance, but these rules can only be ascertained by the most careful observation at the bedside. She there teaches us that living chemistry, the chemistry of reparation, is something different from the chemistry of the laboratory. Organic chemistry is useful, as all knowledge is, when we come face to face with nature; but it by no means follows that we should learn in the laboratory any one of the reparative processes going on in disease.

Again, the nutritive power of milk, and of the preparations from milk, is very much undervalued; there is nearly as much nourishment in half a pint of milk, as there is in a quarter of a pound of meat. But this is not the whole question, or nearly the whole. The main question is, what the patient's stomach can assimilate or derive nourishment from, and of this the patient's stomach is the sole judge. Chemistry can not tell this. The patient's stomach must be its own chemist. The diet which will keep the healthy man healthy, will kill the sick one. The same beef, which is the most nutritive of all meat, and which nourishes the healthy man, is the least nourishing of all food to the sick man, whose half-dead stomach can *assimilate* no part of it, that is, make no food out of it. On a diet of beef tea, healthy men on the other hand speedily lose their strength.

I have known patients live for many months without touching bread, because they could not eat baker's bread. These were mostly country patients, but not all. Home-made bread or brown bread is a most important article of diet for many patients. The use of aperients may be entirely superseded by it. Oat cake is another.

To watch for the opinions, then, which the patient's stomach gives, rather than to read "analyses of foods," is the business of all those who have to settle what the

patient is to eat—perhaps the most important thing to be provided for him after the air he is to breathe.

Now, the medical man who sees the patient only once a day, or even only once or twice a week, can not possibly tell this without the assistance of the patient himself, or of those who are in constant observation on the patient. The utmost the medical man can tell is, whether the patient is weaker or stronger at this visit than he was at the last visit. I should therefore say that incomparably the most important office of the nurse, after she has taken care of the patient's air, is to take care to observe the effect of his food, and report it to the medical attendant.

It is quite incalculable the good that would certainly come from such *sound* and close observation in this almost neglected branch of nursing, or the help it would give to the medical man.

A great deal too much against tea* is said by wise people, and a great deal too much of tea is given to the sick by foolish people. When you see the natural and

* It is made a frequent recommendation to persons about to incur great exhaustion, either from the nature of the service, or from their being not in a state fit for it, to eat a piece of bread before they go. I wish the recommenders would themselves try the experiment of substituting a piece of bread for a cup of tea or coffee, or beef-tea, as a refresher. They would find it a very poor comfort. When soldiers have to set out fasting on fatiguing duty, when nurses have to go fasting in to their patients, it is a hot restorative they want, and ought to have, before they go, not a cold bit of bread. And dreadful have been the consequences of neglecting this. If they can take a bit of bread with the hot cup of tea, so much the better, but not instead of it. The fact that there is more nourishment in bread than in almost anything else, has probably induced the mistake. That it is a fatal mistake there is no doubt. It seems, though very little is known on the subject, that what assimilates itself directly, and with the least trouble of digestion with the human body, is the best for the above circumstances. Bread requires two or three processes of assimilation before it becomes like the human body.

The almost universal testimony of English men and women who have undergone great fatigue, such as riding long journeys without stopping, or sitting up for several nights in succession, is, that they could do it best upon an occasional cup of tea, and nothing else.

Let experience, not theory, decide upon this as upon all other things.

almost universal craving in English sick for their "tea," you can not but feel that nature knows what she is about. But a little tea or coffee restores them quite as much as a great deal, and a great deal of tea, and especially of coffee, impairs the little power of digestion they have. Yet a nurse, because she sees how one or two cups of tea or coffee restores her patient, thinks that three or four cups will do twice as much. This is not the case at all; it is, however, certain that there is nothing yet discovered which is a substitute to the English patient for his cup of tea; he can take it when he can take nothing else, and he often can't take anything else if he has it not. I should be very glad if any of the abusers of tea would point out what to give to an English patient after a sleepless night, instead of tea. If you give it at five or six o'clock in the morning, he may even sometimes fall asleep after it, and get perhaps his only two or three hours' sleep during the twenty-four. At the same time you should never give tea or coffee to the sick, as a rule, after five o'clock in the afternoon. Sleeplessness in the early night is from excitement generally, and is increased by tea or coffee; sleeplessness, which continues to the early morning, is from exhaustion often, and is relieved by tea. The only English patients I have ever known refuse tea, have been typhus cases, and the first sign of their getting better was their craving again for tea. In general, the dry and dirty tongue always prefers tea to coffee, and will quite decline milk, unless with tea. Coffee is a better restorative than tea, but a greater impairer of the digestion. Let the patient's taste decide. You will say that, in cases of great thirst, the patient's craving decides that it will drink *a great deal* of tea, and that you can not help it. But in these cases be sure that the patient requires diluents for quite other purposes than quenching the thirst; he wants a great deal of some drink, not only of tea, and the doctor will order what he is to have, barley water or lemonade, or soda water and milk, as the case may be.

Lehman, quoted by Dr. Christison, says that, among the well and active, "the infusion of one ounce of roasted coffee daily will diminish the waste going on in the body by one-fourth;" and Dr. Christison adds that tea has the same property. Now this is actual experiment. Lehman weighs the man, and finds the fact from his weight. It is not deduced from any "analysis" of food. All experience among the sick shows the same thing.*

Cocoa is often recommended to the sick in lieu of tea or coffee. But independently of the fact that English sick very generally dislike cocoa, it has quite a different effect from tea or coffee. It is an oily, starchy nut, having no restorative power at all, but simply increasing fat. It is pure mockery of the sick, therefore, to call it a substitute for tea. For any renovating stimulus it has, you might just as well offer them chestnuts instead of tea.

An almost universal error among nurses is in the bulk of the food, and especially the drinks they offer to their patients. Suppose a patient ordered four ounces of brandy during the day, how is he to take this if you make it into four pints with diluting it? The same with tea and beef tea, with arrowroot, milk, etc. You have not

* In making coffee, it is absolutely necessary to buy it in the berry and grind it at home. Otherwise you may reckon upon its containing a certain amount of chicory, at least. This is not a question of the taste, or of the wholesomeness of chicory; it is that chicory has nothing at all of the properties for which you give coffee. And therefore you may as well not give it.

Again, all laundresses, mistresses of dairy-farms, head nurses, (I speak of the good old sort only--women who unite a good deal of hard manual labor with the head-work necessary for arranging the day's business, so that none of it shall tread upon the heels of something else,) set great value, I have observed, upon having a high-priced tea. This is called extravagant. But these women are extravagant in nothing else. And they are right in this. Real tea-leaf tea alone contains the restorative they want, which is not to be found in sloe-leaf tea.

The mistresses of houses, who can not even go over their own house once a day, are incapable of judging for these women; for they are incapable themselves, to all appearance, of the spirit of arrangement (no small task) necessary for managing a large ward or dairy.

increased the nourishment, you have not increased the renovating power of these articles, by increasing their bulk—you have very likely diminished both by giving the patient's digestion more to do; and most likely of all, the patient will leave half of what he has been ordered to take, because he can not swallow the bulk with which you have been pleased to invest it. It requires very nice observation and care (and meets with hardly any) to determine what will not be too thick or strong for the patient to take, while giving him no more than the bulk which he is able to swallow.

VIII. BED AND BEDDING.

A few words upon bedsteads and bedding; and principally as regards patients who are entirely, or almost entirely, confined to bed.

Feverishness is generally supposed to be a symptom of fever—in nine cases out of ten it is a symptom of bedding.* The patient has had reintroduced into the body the emanations from himself which day after day and week after week saturates his unaired bedding. How can it be otherwise? Look at the ordinary bed in which a patient lies.

If I were looking out for an example in order to show what *not* to do, I should take the specimen of an ordinary bed in a private house: a wooden bedstead, two or even three mattresses piled up to the height of a table; a valance attached to the frame—nothing but a miracle could ever thoroughly dry or air such a bed and bedding. The patient must inevitably alternate between cold damp after his bed is made, and warm damp before, both satura-

* I once told a "very good nurse" that the way in which her patient's room was kept was quite enough to account for his sleeplessness; and she answered quite good-humouredly she was not at all surprised at it—as if the state of the room were, like the state of the weather, entirely out of her power. Now in what sense was this woman to be called a "nurse?"

ted with organic matter,* and this from the time the mattresses are put under him till the time they are picked to pieces, if this is ever done.

If you consider that an adult in health exhales by the lungs and skin in the twenty-four hours three pints at least of moisture, loaded with organic matter ready to enter into putrefaction; that in sickness the quantity is often greatly increased, the quality is always more noxious—just ask yourself next where does all this moisture go to? Chiefly into the bedding, because it cannot go anywhere else. And it stays there; because, except perhaps a weekly change of sheets, scarcely any other airing is attempted. A nurse will be careful to fidgetiness about airing the clean sheets from clean damp, but airing the dirty sheets from noxious damp will never even occur to her. Besides this, the most dangerous effluvia we know of are from the excreta of the sick—these are placed, at least temporarily, where they must throw their effluvia into the under side of the bed, and the space under the bed is never aired; it cannot be, with our arrangements. Must not such a bed be always saturated, and be always the means of re-introducing into the system of the unfortunate patient who lies in it, that excrementitious matter to eliminate which from the body nature had expressly appointed the disease?

My heart always sinks within me when I hear the good house-wife, of every class, say, "I assure you the bed has been well slept in," and I can only hope it is not true. What? is the bed already saturated with somebody else's damp before my patient comes to exhale in it his own damp? Has it not had a single chance to be aired? No, not one. "It has been slept in every night."

*For the same reason if, after washing a patient, you must put the same night-dress on him again, always give it a preliminary warm at the fire. The night-gown he has worn must be, to a certain extent, damp. It has now got cold from having been off him for a few minutes. The fire will dry and at the same time air it. This is much more important than with clean things.

The only way of really nursing a real patient is to have an *iron* bedstead, with rheocline springs, which are permeable by the air up to the very mattress (no vallance, of course), the mattress to be a thin hair one; the bed to be not above three and a half feet wide. If the patient be entirely confined to his bed, there should be *two* such bedsteads; each bed to be "made" with mattress, sheets, blankets, etc., complete—the patient to pass twelve hours in each bed; on no account to carry his sheets with him. The whole of the bedding to be hung up to air for each intermediate twelve hours. Of course there are many cases where this cannot be done at all—many more where only an approach to it can be made. I am indicating the idea of nursing, and what I have actually had done. But about the kind of bedsteads there can be no doubt, whether there be one or two provided.

There is a prejudice in favor of a wide bed—I believe it to be a prejudice. All the refreshment of moving a patient from one side to the other of the bed is far more effectually secured by putting him into a fresh bed; and a patient who is really very ill does not stray far in bed. But it is said there is no room to put a tray down on a narrow bed. No good nurse will put a tray on a bed at all. If the patient can turn on his side, he will eat more comfortably from a bed side table; and on no account whatever should a bed ever be higher than a sofa. Otherwise the patient feels himself "out of humanity's reach;" he can get at nothing for himself: he can move nothing for himself. If the patient cannot turn, a table over the bed is a better thing. I need hardly say that a patient's bed should never have its side against the wall. The nurse must be able to get easily to both sides of the bed, and to reach easily every part of the patient without stretching—a thing impossible if the bed be either too wide or too high.

When I see a patient in a room nine or ten feet high upon a bed between four and five feet high, with his head,

when he is sitting up in bed, actually within two or three feet of the ceiling, I ask myself, is this expressly planned to produce that peculiarly distressing feeling common to the sick, viz, as if the walls and ceiling were closing in upon them, and they becoming sandwiches between floor and ceiling, which imagination is not, indeed, here so far from the truth? If, over and above this, the window stops short of the ceiling, then the patient's head may literally be raised above the stratum of fresh air, even when the window is open. Can human perversity any farther go, in unmaking the process of restoration which God has made? The fact is, that the heads of sleepers or of sick should never be higher than the throat of the chimney, which ensures their being in the current of best air. And we will not suppose it possible that you have closed your chimney with a chimney-board.

If a bed is higher than a sofa, the difference of the fatigue of getting in and out of bed will just make the difference, very often, to the patient (who can get in and out of bed at all) of being able to take a few minutes' exercise, either in the open air or in another room. It is so very odd that people never think of this, or of how many more times a patient who is in bed for the twenty-four hours is obliged to get in and out of bed than they are, who only, it is to be hoped, get into bed once and out of bed once during the twenty-four hours.

A patient's bed should always be in the lightest spot in the room; and he should be able to see out of window.

I need scarcely say that the old four-post bed with curtains is utterly inadmissible, whether for sick or well. Hospital bedsteads are in many respects very much less objectionable than private ones.

There is reason to believe that not a few of the apparently unaccountable cases of serofula among children proceed from the habit of sleeping with the head under the bed-clothes, and so inhaling air already breathed, which is farther contaminated by exhalations from the

skin. Patients are sometimes given to a similar habit, and it often happens that the bed-clothes are so disposed that the patient must necessarily breathe air more or less contaminated by exhalations from his skin. A good nurse will be careful to attend to this. It is an important part, so to speak, of ventilation.

It may be worth while to remark, that where there is any danger of bed-sores, a blanket should never be placed *under* the patient. It retains damp and acts like a poultice.

Never use anything but light Whitney blankets as bed covering for the sick. The heavy cotton impervious counterpane is bad, for the very reason that it keeps in the emanations from the sick person, while the blanket allows them to pass through. Weak patients are invariably distressed by a great weight of bed-clothes, which often prevents their getting any sound sleep whatever.

IX. LIGHT.

It is the unqualified result of all my experience with the sick, that second only to their need of fresh air is their need of light; that, after a close room, what hurts them most is a dark room. And that it is not only light, but

NOTE.—One word about pillows. Every weak patient, be his illness what it may, suffers more or less from difficulty in breathing. To take the weight of the body off the poor chest, which is hardly up to its work as it is, ought therefore to be the object of the nurse in arranging his pillows. Now what does she do and what are the consequences? She piles the pillows one atop of the other like a wall of bricks. The head is thrown upon the chest. And the shoulders are pushed forward, so as not to allow the lungs room to expand. The pillows, in fact, lean upon the patient, not the patient upon the pillows. It is impossible to give a rule for this, because it must vary with the figure of the patient. And tall patients suffer much more than short ones, because of the drag of the long limbs upon the waist. But the object is to support, with the pillows, the back below the breathing apparatus, to allow the shoulders room to fall back, and to support the head, without throwing it forward. The suffering of dying patients is immensely increased by neglect of these points. And many an invalid, too weak to drag about his pillows himself, slips his book or anything at hand behind the lower part of his back to support it.

direct sun-light they want. I had rather have the power of carrying my patient about after the sun, according to the aspect of the rooms, if circumstances permit, than let him linger in a room when the sun is off. People think the effect is upon the spirits only. This is by no means the case. The sun is not only a painter but a sculptor. You admit that he does the photograph. Without going into any scientific exposition, we must admit that light has quite as real and tangible effects upon the human body. But this is not all. Who has not observed the purifying effect of light, and especially of direct sunlight, upon the air of a room? Here is an observation within every body's experience. Go into a room where the shutters are always shut (in a sick room or a bed-room there should never be shutters shut), and though the room be uninhabited, though the air has never been polluted by the breathing of human beings, you will observe a close, musty smell of corrupt air, of air *i. e.* unpurified by the effect of the sun's rays. The mustiness of dark rooms and corners, indeed, is proverbial. The cheerfulness of a room, the usefulness of light in treating disease, is all-important.

A very high authority in hospital construction, has said that people do not enough consider the difference between wards and dormitories in planning their buildings. But I go farther, and say, that healthy people never remember the difference between bed-rooms and sick rooms, in making arrangements for the sick. To a sleeper in health it does not signify what the view is from his bed. He ought never to be in it excepting when asleep, and at night. Aspect does not very much signify either (provided the sun reach his bed-room some time in every day, to purify the air), because he ought never to be in his bed-room except during the hours when there is no sun. But the case is exactly reversed with the sick, even should they be as many hours out of their beds as you are in yours, which probably they are not. Therefore, that they

should be able, without raising themselves or turning in bed, to see out of window from their beds, to see sky and sunlight at least, if you can show them nothing else, I assert to be, if not of the very first importance for recovery, at least something very near it. And you should therefore look to the position of the beds of your sick one of the very first things. If they can see out of two windows instead of one, so much the better. Again, the morning sun and the mid-day sun—the hours when they are quite certain not to be up, are of more importance to them, if a choice must be made, than the afternoon sun. Perhaps you can take them out of bed in the afternoon and set them by the window, where they can see the sun. But the best rule is, if possible, to give them direct sunlight from the moment he rises till the moment he sets.

Another great difference between the bed-room and the sick-room, is, that the *sleeper* has a very large balance of fresh air to begin with, when he begins the night, if his room has been open all day, as it ought to be; the *sick* man has not, because all day he has been breathing the air in the same room, and dirtying it by the emanations from himself. Far more care is therefore necessary to keep up a constant change of air in the sick room.

It is hardly necessary to add, that there are acute cases (particularly a few ophthalmic cases, and diseases, where the eye is morbidly sensitive), where a subdued light is necessary. But a dark north room is inadmissible even for these. You can always moderate the light by blinds and curtains.

Heavy, thick, dark window or bed curtains should, however, hardly ever be used for any kind of sick in this country. A light white curtain at the head of the bed, is, in general, all that is necessary, and a green blind to the window, to be drawn down only when necessary.

One of the greatest observers of human things (not physiological), says, in another language, "Where there is sun there is thought." All physiology goes to confirm

this. Where is the shady side of deep valleys, there is cretinism. Where are cellars and the unsunned sides of narrow streets, there is the degeneracy and weakness of the human race—mind and body equally degenerating. Put the pale, withering plant, and human being, into the sun, and, if not too far gone, each will recover health and spirit.

It is a curious thing to observe how almost all patients lie with their faces turned to the light, exactly as plants always make their way toward the light; a patient will even complain that it gives him pain “lying on that side.” “Then why *do* you lie on that side?” He does not know; but we do. It is because it is the side toward the window. A fashionable physician has recently published in a government report that he always turns his patients’ faces from the light. Yes, but nature is stronger than fashionable physicians, and depend upon it, she turns the faces back and *toward* such light as she can get. Walk through the wards of a hospital, remember the bedsides of private patients you have seen, and count how many sick you ever saw lying with their faces toward the wall.

CLEANLINESS OF ROOMS AND WALLS.

It can not be necessary to tell a nurse that she should be clean, or that she should keep her patient clean—seeing that the greater part of nursing consists in preserving cleanliness. No ventilation can freshen a room or ward where the most scrupulous cleanliness is not observed. Unless the wind be blowing through the windows at the rate of twenty miles an hour, dusty carpets, dirty wainscots, musty curtains and furniture, will infallibly produce a close smell. I have lived in a large and expensively furnished London house, where the only constant inmate in two very lofty rooms, with opposite windows, was myself; and yet, owing to the above-mentioned dirty circumstances, no opening of windows could ever keep

those rooms free from closeness; but the carpet and curtains having been turned out of the rooms altogether, they became instantly as fresh as could be wished. It is pure nonsense to say that in London a room can not be kept clean. Many of our hospitals show the exact reverse.

But no particle of dust is ever or can ever be removed or really got rid of by the present system of dusting. Dusting in these days means nothing but flapping the dust from one part of the room on to another with doors and windows closed. What you do it for I can not think. You had much better leave the dust alone, if you are not going to take it away altogether. For, from the time a room begins to be a room up to the time when it ceases to be one, no one atom of dust ever actually leaves its precincts. Tidying a room means nothing now but removing a thing from one place, which it has kept clean for itself, on to another and a dirtier one.* Flapping by way of cleaning is only admissible in the case of pictures, or anything made of paper. The only way I know to *remove* dust, the plague of all lovers of fresh air, is to wipe every thing with a damp cloth. And all furniture ought to be so made as that it may be wiped with a damp cloth without injury to itself, and so polished as that it may be damped without injury to others. To dust as it is now practised, truly means to distribute dust more equally over a room.

* If you like to clean your furniture by laying out your clean clothes upon your dirty chairs or sofa, this is one way certainly of doing it. Having witnessed the morning process called "tidying the room," for many years, and with ever-increasing astonishment, I can describe what it is. From the chairs, tables, or sofa, upon which the "things" have lain during the night, and which are therefore comparatively clean from dust or blacks, the poor "things" having "caught" it, they are removed to other chairs, tables, sofas, upon which you could write your name with your finger in the dust or black. The other side of the "things" is therefore now evenly dirtied or dusted. The housemaid then flaps everything, or some things, not out of her reach, with a thing called a duster; the dust flies up, then re-settles more equally than it lay before the operation. The room has now been "put to rights."

As to floors, the only really clean floor I know is the Berlin *lacked* floor, which is wet rubbed and dry rubbed every morning to remove the dust. The French *parquet* is always more or less dusty, although infinitely superior in point of cleanliness and healthiness to our absorbent floor.

For a sick room, a carpet is perhaps the worst expedient which could by any possibility have been invented. If you must have a carpet, the only safety is to take it up two or three times a year, instead of once. A dirty carpet literally infects the room. And if you consider the enormous quantity of organic matter from the feet of people coming in, which must saturate it, this is by no means surprising.

As for walls, the worst is the papered wall; the next worst is plaster. But the plaster can be redeemed by frequent lime-washing; the paper requires frequent renewing. A glazed paper gets rid of a good deal of the danger. But the ordinary bed-room paper is all that it ought *not* to be.*

The close connection between ventilation and cleanliness is shown in this. An ordinary light paper will last clean much longer if there is an Arnott's ventilator in the chimney, than it otherwise would.

The best wall now extant is oil paint; from this you can wash the animal exuvæ.†

These are what make a room musty.

The best wall for a sick-room or ward that could be made is pure white non-absorbent cement or glass, or glazed tiles, if they were made sightly enough.

* I am sure that a person who has accustomed her senses to compare atmospheres proper and improper, for the sick and for children, could tell, blindfold, the difference of the air in old painted and in old papered rooms—*cæteris paribus*. The latter will always be dusty, even with all the windows open.

† If you like to wipe your dirty door, or some portion of your dirty wall by hanging up your clean gown or shawl against it on a peg, this is one way certainly, and the most usual way, and generally the only way, of cleaning either door or wall in a bed-room!

Air can be soiled just like water. If you blow into water you will soil it with the animal matter from your breath. So it is with air. Air is always soiled in a room where walls and carpets are saturated with animal exhalations.

Want of cleanliness, then, in rooms and wards, which you have to guard against, may arise in three ways.

1. Dirty air coming in from without, soiled by sewer emanations, the evaporation from dirty streets, smoke, bits of unburnt fuel, bits of straw, bits of horse dung.

If people would but cover the outside walls of their houses with plain or encaustic tiles, what an incalculable improvement would there be in light, cleanliness, dryness, warmth, and consequently economy. The play of a fire-engine would then effectually wash the outside of a house. This kind of *walling* would stand next to paving in improving the health of towns.

2. Dirty air coming from within, from dust, which you often displace, but never remove. And this recalls what ought to be a *sine qua non*. Have as few ledges in your room or ward as possible. And under no pretence have any ledge whatever out of sight. Dust accumulates there, and will never be wiped off. This is a certain way to soil the air. Besides this, the animal exhalations from your inmates saturate your furniture. And if you never clean your furniture properly, how can your rooms or wards be anything but musty? Ventilate as you please, the rooms will never be sweet. Besides this, there is a constant *degradation*, as it is called, taking place from everything except polished or glazed articles, *e. g.*, in colouring certain green papers arsenic is used. Now in the very dust even, which is lying about in rooms hung with this kind of green paper, arsenic has been distinctly detected. You see your dust is anything but harmless; yet you will let such dust lie about in ledges for months, your rooms for ever.

Again, the fire fills the room with coal-dust.

• 3. Dirty air coming from the carpet. Above all, take care of the carpets, that the animal dirt left there by the feet of visitors does not stay there. Floors, unless the grain is filled up and polished, are just as bad. The smell from the floor of a school-room or ward, when any moisture brings out the organic matter by which it is saturated, might alone be enough to warn us of the mischief that is going on.

The outer air, then, can only be kept clean by sanitary improvements, and by consuming smoke. The expense in soap, which this single improvement would save, is quite incalculable.

The inside air can only be kept clean by excessive care in the ways mentioned above—to rid the walls, carpets, furniture, ledges, etc., of the organic matter and dust—dust consisting greatly of this organic matter—with which they become saturated, and which is really what makes the room musty.

Without cleanliness, you cannot have all the effect of ventilation; without ventilation, you can have no thorough cleanliness.

Very few people, be they of what class they may, have any idea of the exquisite cleanliness required in the sick-room. For much of what I have said applies less to the hospital than to the private sick-room. The smoky chimney, the dusty furniture, the utensils emptied but once a day, often keep the air of the sick constantly dirty in the best private houses.

The well have a curious habit of forgetting that what is to them but a trifling inconvenience, to be patiently “put up” with, is to the sick a source of suffering, delaying recovery, if not actually hastening death. The well are scarcely ever more than eight hours, at most, in the same room. Some change they can always make, if only for a few minutes. Even during the supposed eight hours, they can change their posture or their position in the room. But the sick man who never leaves his bed, who

cannot change by any movement of his own his air, or his light, or his warmth; who cannot obtain quiet, or get out of the smoke, or the smell, or the dust; he is really poisoned or depressed by what is to you the merest trifle.

“What can’t be cured must be endured,” is the very worst and most dangerous maxim for a nurse that ever was made. Patience and resignation in her are but other words for carelessness or indifference—contemptible, if in regard to herself; culpable, if in regard to her sick.

XI. PERSONAL CLEANLINESS.

In almost all diseases, the function of the skin is, more or less, disordered; and in many most important diseases nature relieves herself almost entirely by the skin. This is particularly the case with children. But the excretion, which comes from the skin, is left there, unless removed by washing or by the clothes. Every nurse should keep this fact constantly in mind,—for, if she allow her sick to remain unwashed, or their clothing to remain on them after being saturated with perspiration or other excretion, she is interfering injuriously with the natural processes of health just as effectually as if she were to give the patient a dose of slow poison by the mouth. Poisoning by the skin is no less certain than by the mouth—only it is slower in its operation.

The amount of relief and comfort experienced by sick after the skin has been carefully washed and dried, is one of the commonest observations made at a sick bed. But it must not be forgotten that the comfort and relief so obtained are not all. They are, in fact, nothing more than a sign that the vital powers have been relieved by removing something that was oppressing them. The nurse, therefore, must never put off attending to the personal cleanliness of her patient under the plea that all that is to be gained is a little relief, which can be quite as well given later.

In all well regulated hospitals this ought to be, and generally is, attended to. But it is very generally neglected with private sick.

Just as it is necessary to renew the air around a sick person frequently, to carry off morbid effluvia from the lungs and skin, by maintaining free ventilation, so is it necessary to keep the pores of the skin free from all obstructing excretions. The object, both of ventilation and of skin-cleanliness, is pretty much the same,—to wit, removing noxious matter from the system as rapidly as possible.

Care should be taken in all the operations of sponging, washing, and cleansing the skin, not to expose too great a surface at once, so as to check the perspiration, which would renew the evil in another form.

The various ways of washing the sick need not here be specified,—the less so as the doctors ought to say which is to be used.

In several forms of diarrhœa, dysentery, etc., where the skin is hard and harsh, the relief afforded by washing with a great deal of soft soap is incalculable. In other cases, sponging with tepid soap and water, then with tepid water and drying with a hot towel will be ordered.

Every nurse ought to be careful to wash her hands very frequently during the day. If her face too, so much the better.

One word too as cleanliness merely as cleanliness.

Compare the dirtiness of the water in which you have washed when it is cold without soap, cold with soap, hot with soap. You find the first has hardly removed any dirt at all, the second a little more, the third a great deal more. But hold your hand over a cup of hot water for a minute or two, and then, by merely rubbing with the finger, you will bring off flakes of dirt or dirty skin. After a vapour bath you may peel your whole self clean in this way. What I mean is, that by simply washing or sponging with water you do not really clean your skin. Take

a rough towel, dip one corner in very hot water,—if a little spirit be added to it it will be more effectual,—and then rub as if you were rubbing the towel into your skin with your fingers. The black flakes which will come off will convince you that you were not clean before, however much soap and water you may have used. These flakes are what require removing. And you can really keep yourself cleaner with a tumbler of hot water and a rough towel and rubbing, than with a whole apparatus of bath and soap and sponge, without rubbing. It is quite nonsense to say that anybody need be dirty. Patients have been kept as clean by these means on a long voyage, when a basin full of water could not be afforded, and when they could not be moved out of their berths, as if all the appurtenances of home had been at hand.

Washing, however, with a large quantity of water, has quite other effects than those of mere cleanliness. The skin absorbs the water and becomes softer and more perspirable. To wash with soap and soft water is, therefore, desirable from other points of view than that of cleanliness.

XII. CHATTERING HOPES AND ADVICES.

The sick man to his advisers :

“My advisers! Their name is legion. * * *
Somehow or other, it seems a provision of the universal destinies, that every man, woman and child, should consider him, her, or itself, privileged especially to advise me. Why? That is precisely what I want to know.” And this is what I have to say to them. I have been advised to go to every place extant in and out of England—to take every kind of exercise by every kind of cart, carriage—yes, and even swing (!) and dumb-bell (!) in existence; to imbibe every different kind of stimulus that ever has been invented. And this, when those *best* fitted to know, viz: medical men, after long and close attendance, had declared any journey out of the question, had

prohibited any kind of motion whatever, had closely laid down the diet and drink. What would my advisers say, were they the medical attendants, and I, the patient, left their advice, and took the casual adviser's? But the singularity in Legion's mind is this: it never occurs to him that every body else is doing the same thing, and that I, the patient, *must* perforce say, in sheer self-defense, like Rosalind, "I could not do with all."

"Chattering Hopes" may seem an odd heading; but I really believe there is scarcely a greater worry which invalids have to endure than the incurable hopes of their friends. There is no one practice against which I can speak more strongly from actual personal experience, wide and long, of its effects during sickness observed both upon others and upon myself. I would appeal most seriously to all friends, visitors, and attendants of the sick, to leave off this practice of attempting to "cheer" the sick by making light of their danger, and by exaggerating their probabilities of recovery.

Far more now than formerly does the medical attendant tell the truth to the sick, who are really desirous to hear it about their own state.

How intense is the folly, then, to say the least of it, of the friend, be he even a medical man, who thinks that his opinion, given after a cursory observation, will weigh with the patient, against the opinion of the medical attendant, given, perhaps, after years of observation, after using every help to diagnosis afforded by the stethoscope, the examination of pulse, tongue, etc.; and certainly after much more observation than the friend can possibly have had.

Supposing the patient to be possessed of common sense—how can the favorable opinion, if it is to be called an opinion at all, of the casual visitor, cheer him—when different from that of the experienced attendant? Unquestionably the latter may, and often does, turn out to be wrong. But which is most likely to be wrong?

The fact is, that the patient* is not cheered at all by these well meaning, most tiresome friends. On the contrary, he is depressed and wearied. If, on the one hand, he exerts himself to tell each successive member of this too numerous conspiracy, whose name is legion, why he does not think as they do—in what respect he is worse—what symptoms exist that they know nothing of—he is fatigued instead of cheered, and his attention is fixed upon himself. In general, patients who are really ill, do not want to talk about themselves. Hypochondriacs do; but again I say, we are not on the subject of hypochondriacs.

If, on the other hand, and which is much more frequently the case, the patient says nothing, but the Shakespearian “Oh!” “Ah!” “Go to!” and, “In good sooth!” in order to escape from the conversation about himself the sooner, he is depressed by want of sympathy. He feels isolated in the midst of friends. He feels what a convenience it would be, if there were any single person to whom

* There are, of course, cases, as in first confinements, when an assurance from the doctor, or experienced nurse, to the frightened, suffering woman, that there is nothing unusual in her case, that she has nothing to fear but a few hours' pain, may cheer her most effectually. This is advice of quite another order. It is the advice of experience to utter inexperience. But the advice we have been referring to, is, the advice of inexperience to bitter experience; and, in general, amounts to nothing more than this, that you think I shall recover from consumption because some body knows some body some where who has recovered from fever.

I have heard a doctor condemned whose patient did not, alas! recover, because another doctor's patient, of a different sex, of a different age, recovered from a different disease, in a different place. Yes, this is really true. If people who make these comparisons did but know (only they do not care to know), the care and preciseness with which such comparisons require to be made (and are made), in order to be of any value whatever, they would spare their tongues. In comparing the deaths of one hospital with those of another, any statistics are justly considered absolutely valueless, which do not give the ages, the sexes, and the diseases of all the cases. It does not seem necessary to mention this. It does not seem necessary to say that there can be no comparison between old men with dropsies and young women with consumptions. Yet the cleverest men and the cleverest women are often heard making such comparisons, ignoring entirely sex, age, disease, place—in fact, all the conditions essential to the question. It is the merest gossip.

he could speak simply and openly, without pulling the string upon himself of this shower-bath of silly hopes and encouragements; to whom he could express his wishes and directions without that person persisting in saying, "I hope that it will please God yet to give you twenty years;" or, "You have a long life of activity before you." How often we see at the end of biographies, or of cases recorded in medical papers, "After a long illness A. died rather suddenly," or "unexpectedly both to himself and to others." "Unexpectedly" to others, perhaps, who did not see, because they did not look; but by no means "unexpectedly to himself," as I feel entitled to believe, both from the internal evidence in such stories, and from watching similar cases; there was every reason to expect that A. would die, and he knew it; but he found it useless to insist upon his own knowledge to his friends.

In these remarks I am alluding neither to acute cases which terminate rapidly, nor to "nervous" cases.

By the first much interest in their own danger is very rarely felt. In writings of fiction, whether novels or biographies, these death-beds are generally depicted as almost seraphic in lucidity of intelligence. Sadly large has been my experience in death-beds, and I can only say that I have seldom or never seen such. Indifference, except with regard to bodily suffering, or to some duty the dying man desires to perform, is the far more usual state.

The "nervous case," on the other hand, delights in figuring to himself and others a fictitious danger.

But the long chronic case, who knows too well himself, and who has been told by his physician that he will never enter active life again; who feels that every month he has to give up something he could do the month before—Oh! spare such sufferers your chattering hopes. You do not know how you worry and weary them. Such real sufferers can not bear to talk of themselves, still less to hope for what they can not at all expect.

So also as to all the advice showered so profusely upon such sick, to leave off some occupation, to try some other doctor, some other house, climate, pill, powder, or specific. I say nothing of the inconsistency; for these advisers are sure to be the same persons who exhorted the sick man not to believe his own doctor's prognostics, because "doctors are always mistaken;" but to believe some other doctor, because "this doctor is always right." Sure also are these advisers to be the persons to bring the sick man fresh occupation, while exhorting him to leave his own.

Wonderful is the face with which friends, lay and medical, will come in and worry the patient with recommendations to do something or other, having just as little knowledge as to its being feasible, or even safe for him, as if they were to recommend a man to take exercise, not knowing he had broken his leg. What would the friend say, if *he* were the medical attendant, and if the patient, because some *other* friend had come in—because somebody, anybody, nobody, had recommended something, anything, nothing, were to disregard *his* orders, and take that other body's recommendation? But people never think of this.

A celebrated historical personage has related the commonplaces which, when on the eve of executing a remarkable resolution, were showered in nearly the same words by every one around successively for a period of six months. To these the personage states that it was found least trouble always to reply the same thing, viz., that it could not be supposed that such a resolution had been taken without sufficient previous consideration. To patients enduring every day for years, from every friend or acquaintance, either by letter or *viva voce*, some torment of this kind, I would suggest the same answer. It would indeed be spared, if such friends and acquaintances would but consider for a moment, that it is probable the patient has heard such advice at least fifty times before, and that, had it been practicable, it would have been

practised long ago. But of such consideration there appears to be no chance. Strange, though true, that people should be just the same in these things as they were a few hundred years ago!

To me these commonplaces, leaving their smear upon the cheerful, single-hearted, constant devotion to duty, which is so often seen in the decline of such sufferers, recall the slimy trail left by the snail on the sunny southern garden wall loaded with fruit.

No mockery in the world is so hollow as the advice showered upon the sick. It is of no use for the sick to say anything; for what the adviser wants is, *not* to know the truth about the state of the patient, but to turn whatever the sick may say to the support of his own argument, set forth, it must be repeated, without any inquiry whatever into the patient's real condition. "But it would be impertinent or indecent in me to make such an inquiry," says the adviser. True; and how much more impertinent is it to give your advice when you can know nothing about the truth, and admit you could not inquire into it.

To nurses I say, these are the visitors who do your patient harm. When you hear him told, 1. That he has nothing the matter with him, and that he wants cheering. 2. That he is committing suicide, and that he wants preventing. 3. That he is the tool of somebody who makes use of him for a purpose. 4. That he will listen to nobody, but is obstinately bent upon his own way; and, 5. That he ought to be called to a sense of duty, and is flying in the face of Providence—then know that your patient is receiving all the injury that he can receive from a visitor.

How little the real sufferings of illness are known or understood. How little does any one in good health fancy him or even *herself* into the life of a sick person.

Do, you who are about the sick or who visit the sick, try and give them pleasure, remember to tell them what

will do so. How often in such visits the sick person has to do the whole conversation, exerting his own imagination and memory, while you would take the visitor, absorbed in his own anxieties, making no effort of memory or imagination, for the sick person. "Oh! my dear, I have so much to think of, I really forgot to tell him that; besides, I thought he would know it," says the visitor to another friend. How could "he know it?" Depend upon it, the people who say this are really those who have little "to think of." There are many burthened with business who always manage to keep a pigeon-hole in their minds, full of things to tell the "invalid."

I do not say, don't tell him your anxieties—I believe it is good for him and good for you too; but if you tell him what is anxious, surely you can remember to tell him what is pleasant, too.

A sick person does so enjoy hearing good news; for instance, of a love and courtship, while in progress to a good ending. If you tell him only when the marriage takes place, he loses half the pleasure, which God knows he has little enough of; and ten to one but you have told him of some love-making with a bad ending.

A sick person also intensely enjoys hearing of any *material* good, any positive or practical success of the right. He has so much of books and fiction, of principles, and precepts, and theories; do, instead of advising him with advice he has heard at least fifty times before, tell him of one benevolent act which has really succeeded practically—it is like a day's health to him.*

You have no idea what the craving of sick with undiminished power of thinking, but little power of doing, is to hear of good practical action, when they can no longer partake in it.

* A small pet animal is often an excellent companion for the sick, for long chronic cases especially. A pet bird in a cage is sometimes the only pleasure of an invalid confined for years to the same room. If he can feed and care for the animal himself, he ought always to be encouraged to do so.

Do observe these things with the sick. Do remember how their life is to them disappointed and incomplete. You see them lying there with miserable disappointments, from which they can have no escape but death, and you can't remember to tell them of what would give them so much pleasure, or at least an hour's variety.

They don't want you to be lachrymose and whining with them, they like you to be fresh and active and interested, but they can not bear absence of mind, and they are so tired of the advice and preaching they receive from every body, no matter whom it is, they see.

There is no better society than babies and sick people for one another. Of course you must manage this so that neither shall suffer from it, which is perfectly possible. If you think the air of the sick room bad for the baby, why, it is bad for the invalid too, and, therefore, you will of course correct it for both. It freshens up a sick person's whole mental atmosphere to see "the baby." And a very young child, if unspoiled, will generally adapt itself wonderfully to the ways of a sick person, if the time they spend together is not too long.

If you know how unreasonably sick people suffer from reasonable causes of distress, you would take more pains about all these things. An infant laid upon the sick bed will do the sick person, thus suffering, more good than all your logic. A piece of good news will do the same. Perhaps you are afraid of disturbing him. You say there is no comfort for his present cause of affliction. It is perfectly reasonable. The distinction is this, if he is obliged to act, do not disturb him with another subject of thought just yet; help him to do what he wants to do; but, if he *has* done this, or if nothing *can* be done, then disturb him by all means. You will relieve, more effectually, unreasonable suffering from reasonable causes by telling him the news, showing him "the baby," or giving him something new to think of, or to look at, than by all the logic in the world.

It has been very justly said that the sick are like children in this, that there is no *proportion* in events to them. Now, it is your business, as their visitor, to restore this right proportion for them—to show them what the rest of the world is doing. How can they find it out otherwise? You will find them far more open to conviction than children in this. And you will find that their unreasonable intensity of suffering from unkindness, from want of sympathy, etc., will disappear with their freshened interest in the big world's events. But then you must be able to give them real interest, not gossip.

XIII. OBSERVATION OF THE SICK.

There is no more silly or universal question scarcely asked than this: "Is he better?" Ask it of the medical attendant, if you please. But of whom else, if you wish for a real answer to your question, would you ask? Certainly not of the casual visitor; certainly not of the nurse, while the nurse's observation is so little exercised as it is now. What you want are facts, not opinions—for who can have any opinion of any value as to whether the patient is better or worse, excepting the constant medical attendant, or the really observing nurse?

The most important practical lesson that can be given to nurses, is to teach them what to observe—how to observe—what symptoms indicate improvement—what the reverse—which are of importance—which are of none—

NOTE.—There are two classes of patients which are unfortunately becoming more common every day, especially among women of the richer orders, to whom all these remarks are pre-eminently inapplicable. 1. Those who make health an excuse for doing nothing, and at the same time allege that the being able to do nothing is their only grief. 2. Those who have brought upon themselves ill-health by over pursuit of amusement, which they and their friends have most unhappily called intellectual activity. I scarcely know a greater injury that can be inflicted, than the advice too often given to the first class to "vegetate," or than the admiration too often bestowed on the latter class for "pluck."

which are the evidence of neglect—and of what kind of neglect.

All this is what ought to make part, and an essential part, of the training of every nurse. At present, how few there are, either professional or unprofessional, who really know at all whether any sick person they may be with, is better or worse.

The vagueness and looseness of the information one receives in answer to that much abused question, "Is he better?" would be ludicrous, if it were not painful. The only sensible answer (in the present state of knowledge about sickness) would be, "How can I know? I can not tell how he was when I was not with him."

I can record but a few specimens of the answers* which

* It is a much more difficult thing to speak the truth than people commonly imagine. There is the want of observation simple, and the want of observation compound, compounded, that is, with the imaginative faculty. Both may equally intend to speak the truth. The information of the first is simply defective. That of the second is much more dangerous. The first gives, in answer to a question asked about a thing that has been before his eyes perhaps for years, information exceedingly imperfect, or says, he does not know. He has never observed. And people simply think him stupid.

The second has observed just as little, but imagination immediately steps in, and he describes the whole thing from imagination merely, being perfectly convinced all the while that he has seen or heard it; or he will repeat a whole conversation, as if it were information which had been addressed to him; whereas it is merely what he has himself said to some body else. This is the commonest of all. These people do not even observe that they have not observed, nor remember that they have forgotten.

Courts of justice seem to think that any body can speak "the whole truth, and nothing but the truth," if he does but intend it. It requires many faculties combined of observation and memory to speak "the whole truth!" and to say "nothing but the truth."

"I knows I fibs dreadful; but believe me, Miss, I never finds out I have fibbed until they tells me so," was a remark actually made. It is also one of much more extended application than most people have the least idea of.

Concurrence of testimony, which is so often adduced as final proof, may prove nothing more, as is well known to those accustomed to deal with the unobservant imaginative, than that one person has told his story a great many times.

I have heard thirteen persons concur in declaring that a fourteenth, who had never left his bed, went to a distant chapel every morning at seven o'clock.

I have heard made by friends and nurses, and accepted by physicians and surgeons at the very bedside of the patient, who could have contradicted every word, but did not—sometimes from amiability, often from shyness, oftener from languor!

“How often have the bowels acted, nurse?” “Once, sir.” This generally means that the utensil has been emptied once, it having been used perhaps seven or eight times.

“Do you think the patient is much weaker than he was six weeks ago?” “Oh no, sir; you know it is very long since he has been up and dressed, and he can get across the room now.” This means that the nurse has not observed that, whereas, six weeks ago, he sat up and occupied himself in bed, he now lies still doing nothing; that, although he can “get across the room,” he can not stand for five seconds.

Another patient who is eating well, recovering steadily, although slowly, from fever, but can not walk or stand, is represented to the doctor as making no progress at all.

Questions, too, as asked now (but too generally) of or about patients, would obtain no information at all about them, even if the person asked of had every information to give. The question is generally a leading question; and it is singular that people never think what must be the answer to this question before they ask it; for instance, “Has he had a good night?” Now, one patient will think he has had a bad night if he has not slept ten hours without waking. Another does not think he has a bad night if he has had intervals of dosing occasionally. The same answer has actually been given as regarded two patients—one who had been entirely sleepless for five

I have heard persons in perfect good faith declare, that a man came to dine every day at the house where they lived, who had never dined there once; that a person had never taken the sacrament, by whose side they had twice, at least, knelt at communion; that but one meal a day came out of a hospital kitchen, which for six weeks they had seen provide from three to five and six meals a day. Such instances might be multiplied *ad infinitum*, if necessary.

times twenty-four hours, and died of it, and another who had not slept the sleep of a regular night without waking. Why can not the question be asked, How many hours' sleep has ——— had? and at what hours of the night? * "I have never closed my eyes all night"—an answer as frequently made when the speaker has had several hours' sleep as when he has had none, would then be less often said. Lies, intentional and unintentional, are much seldom told in answer to precise than to leading questions. Another frequent error is to inquire whether one cause remains, and not whether the effect which may be produced by a great many different causes, *not* inquired after, remains. As when it is asked, whether there was noise in the street last night; and if there were not, the patient is reported, without more ado, to have had a good night. Patients are completely taken aback by these kinds of leading questions, and give only the exact amount of information asked for, even when they know it to be completely misleading. The shyness of patients is seldom allowed for.

How few there are who, by five or six pointed questions, can elicit the whole case, and get accurately to know and to be able to report *where* the patient is.

I knew a very clever physician, of large dispensary and hospital practice, who invariably began his examination of each patient with, "Put your finger where you be bad." That man would never waste his time with collecting inaccurate information from nurse or patient. Leading questions always collect inaccurate information.

At a recent celebrated trial, the following leading question was put successively to nine distinguished medical

* This is important, because on this depends what the remedy will be. If a patient sleeps two or three hours early in the night, and then does not sleep again at all, ten to one it is not a narcotic he wants, but food or stimulus, or perhaps only warmth. If, on the other hand, he is restless and awake all night, and is drowsy in the morning, he probably wants sedatives—either quiet, coolness, or medicine, a lighter diet, or all four. Now, the doctor should be told this, or how can he judge what to give?

men. "Can you attribute these symptoms to anything else but poison?" And out of the nine, eight answered "No!" without any qualification whatever. It appeared, upon cross-examination, 1. That none of them had ever seen a case of the kind of poisoning supposed. 2. That none of them had ever seen a case of the kind of disease to which the death, if not to poison, was attributable. 3. That none of them were even aware of the main fact of the disease and condition to which the death was attributable.

Surely nothing stronger can be adduced to prove what use leading questions are of, and what they lead to.

I had rather not say how many instances I have known, where, owing to this system of leading questions, the patient has died, and the attendants have been actually unaware of the principal feature of the case.

It is useless to go through all the particulars, besides sleep, in which people have a peculiar talent for gleaning inaccurate information. As to food, for instance, I often think that most common question, How is your appetite? can only be put because the questioner believes the questioned has really nothing the matter with him, which is very often the case. But where there is, the remark holds good which has been made about sleep. The *same* answer will often be made as regards a patient who can not take two ounces of solid food per diem, and a patient who does not enjoy five meals a day as much as usual.

Again, the question, How is your appetite? is often put when, How is your digestion? is the question meant. No doubt the two things depend on one another. But they are quite different. Many a patient can eat, if you can only "tempt his appetite." The fault lies in your not having got him the thing that he fancies. But many another patient does not care between grapes and turnips, everything is equally distasteful to him. He would try to eat anything which would do him good; but everything "makes him worse." The fault here generally lies in

the cooking. It is not his "appetite" which requires "tempting," it is his digestion which requires sparing; and good sick cookery will save the digestion half its work.

There may be four different causes, any one of which will produce the same result, viz., the patient slowly starving to death from want of nutrition :

1. Defect in cooking.
2. Defect in choice of diet.
3. Defect in choice of hours for taking diet.
4. Defect of appetite in patient.

Yet all these are generally comprehended in the one sweeping assertion that the patient has "no appetite."

Surely many lives might be saved by drawing a closer distinction; for the remedies are as diverse as the causes. The remedy for the first is to cook better; for the second, to choose other articles of diet; for the third, to watch for the hours when the patient is in want of food; for the fourth, to show him what he likes, and sometimes unexpectedly. But no one of these remedies will do for any other of the defects not corresponding with it.

I cannot too often repeat that patients are generally either too languid to observe these things, or too shy to speak about them; nor is it well that they should be made to observe them, it fixes their attention upon themselves.

Again, I say, what is the nurse or friend there for except to take notes of these things, instead of the patient doing so? *

Again, the question is sometimes put, is there diarrhœa? And the answer will be the same, whether it is just merging into cholera, whether it is a trifling degree brought on by

* It is commonly supposed that the nurse is there to spare the patient from making physical exertion for himself—I would rather say that she ought to be there to spare him from taking thought for himself. And I am quite sure, that if the patient were spared all thought for himself, and not spared all physical exertion, he would be infinitely the gainer. The reverse is generally the case in the private house. In the hospitals it is the relief from all anxiety, afforded by the rules of a well-regulated institution, which has often such a beneficial effect upon the patient.

some trifling indiscretion, which will cease the moment the cause is removed, or whether there is no diarrhœa at all, but simply relaxed bowels.

It is useless to multiply instances of this kind. As long as observation is so little cultivated as it is now, I do believe that it is better for the physician *not* to see the friends of the patient at all. They will oftener mislead him than not. And as often by making the patient out worse as better than he really is.

In the case of infants, *everything* must depend upon the accurate observation of the nurse or mother who has to report. And how seldom is this condition of accuracy fulfilled.

A celebrated man, though celebrated only for foolish things, has told us that one of the main objects in the education of his son, was to give him a ready habit of accurate observation, a certainty of perception, and that for this purpose one of his means was a month's course as follows:—he took the boy rapidly past a toy shop; the father and son then described to each other as many of the objects as they could, which they had seen in passing the windows, noting them down with pencil and paper, and returning afterwards to verify their own accuracy. The boy always succeeded best, *e. g.*, if the father described thirty objects, the boy did 40, and scarcely ever made a mistake.

I have often thought how wise a piece of education this would be for much higher objects; and in our calling of nurses the thing itself is essential. For it may safely be said, not that the habit of ready and correct observation will by itself make us useful nurses, but that without it we shall be useless with all our devotion.

I have known a nurse in charge of a set of wards, who not only carried in her head all the little varieties in the diets which each patient was allowed to fix for himself, but also exactly what each patient had taken during each day. I have known another nurse in charge of one single pa-

tient, who took away his meals day after day all but untouched, and never knew it.

If you find it helps you to note down such things on a bit of paper, in pencil, by all means do so. I think it more often lames than strengthens the memory and observation. But if you cannot get the habit of observation one way or other, you had better give up the being a nurse, for it is not your calling, however kind and anxious you may be.

Surely you can learn at least to judge with the eye how much an ounce of solid food is, how much an ounce of liquid. You will find this helps your observation and memory very much; you will then say to yourself, "A. took about an ounce of his meat to day;" "B. took three times in twenty-four hours about one-half pint of beef tea;" instead of saying "B. has taken nothing all day," or "I gave A. his dinner as usual."

I have known several of our real old-fashioned hospital "sisters," who could, as accurately as a measuring glass, measure out all their patients' wine and medicine by the eye, and never be wrong. I do not recommend this, one must be very sure of one's self to do it. I only mention it, because if a nurse can by practice measure medicine by the eye, surely she is no nurse who can't measure by the eye about how much food (in ounces) her patient has taken.* In hospitals those who cut up the diet give with

* It may be too broad an assertion, and it certainly sounds like a paradox. But I think in no country are women to be found so deficient in ready and sound observation as in England, while peculiarly capable of being trained to it. The French or Irish woman is too quick of perception to be so sound an observer—the Teuton is too slow to be so ready an observer as the English woman might be. Yet English women lay themselves open to the charge so often made against them by men, viz., that they are not to be trusted in handicrafts to which their strength is quite equal, for want of a practised and steady observation. In countries where women (with average intelligence certainly not superior to that of English women) are employed, *e. g.*, in dispensing, men responsible for what these women do (not theorizing about man's and woman's "mission,") have stated that they preferred the service of women to that of men, as being more exact, more careful, and incurring fewer mistakes of inadvertence.

sufficient accuracy, to each patient, his twelve ounces or his six ounces of meat without weighing. Yet a nurse will often have patients loathing all food and incapable of any will to get well, who just tumble over the contents of the plate or dip the spoon in the cup to deceive the nurse, and she will take it away without ever seeing that there is just the same quantity of food as when she brought it, and she will tell the doctor, too, that the patient has eaten all his diets as usual, when all she ought to have meant is that she has taken away his diets as usual.

Now, what kind of a nurse is this?

I would call attention to something else, in which nurses frequently fail in observation. There is a well-marked distinction between the excitable and what I will call the *accumulative* temperament in patients. One will blaze up at once, under any shock or anxiety, and sleep very comfortably after it; another will seem quite calm and even torpid, under the same shock, and people say,

Now certainly English women are peculiarly capable of attaining to this.

I remember when a child, hearing the story of an accident, related by some one who sent two girls to fetch a "bottle of salvolatile from her room;" "Mary could not stir," she said, "Fanny ran and fetched a bottle that was not salvolatile, and that was not in my room."

Now this sort of thing pursues every one through life. A woman is asked to fetch a large new bound red book, lying on the table by the window, and she fetches five small old boarded brown books lying on the shelf by the fire. And this, though she has "put that room to rights" every day for a month perhaps, and must have observed the books every day, lying in the same places, for a month, if she had any observation.

Habitual observation is more necessary, when any sudden call arises. If "Fanny" had observed "the bottle of salvolatile" in the aunt's room, every day she was there, she would more probably have found it when it was suddenly wanted.

There are two causes for these mistakes of inadvertence. 1. A want of ready attention; only part of the request is heard at all. 2. A want of the habit of observation.

To a nurse I would add, take care that you always put the same things in the same places; you don't know how suddenly you may be called on some day to find something, and may not be able to remember in your haste where you yourself had put it, if your memory is not in the habit of seeing the thing there always.

"He hardly felt it at all," yet you will find him some time after slowly sinking. The same remark applies to the action of narcotics, of aperients, which, in the one, take effect directly, in the other not perhaps for twenty-four hours. A journey, a visit, an unwonted exertion, will affect the one immediately, but he recovers after it; the other bears it very well at the time, apparently, and dies, or is prostrated for life by it. People often say how difficult the excitable temperament is to manage. I say how difficult is the *accumulative* temperament. With the first you have an outbreak which you could anticipate, and it is all over. With the second you never know where you are—you never know when the consequences are over. And it requires your closest observation to know what *are* the consequences of what—for the consequent by no means follows immediately upon the antecedent—and coarse observation is utterly at fault.

Almost all superstitions are owing to bad observation, to the *post hoc, ergo propter hoc*; and bad observers are almost all superstitious. Farmers used to attribute disease among cattle to witchcraft; weddings have been attributed to seeing one magpie, deaths to seeing three; and I have heard the most highly educated, now-a-days, draw consequences for the sick closely resembling these.

Another remark: although there is unquestionably a physiognomy of disease as well as of health; of all parts of the body, the face is, perhaps, the one which tells the least to the common observer or casual visitor. Because, of all parts of the body, it is the one most exposed to other influences beside health. And people never, or scarcely ever, observe enough to know how to distinguish between the effect of exposure, of robust health, of a tender skin, of a tendency to congestion, of suffusion, flushing, or many other things. Again, the face is often the last to show emaciation. I should say that the hand was a much surer test than the face, both as to flesh, color, circulation, etc. It is true, that there are *some* diseases

which are only betrayed at all by something in the face, *e. g.*, the eye or the tongue, as great irritability of brain by the appearance of the pupil of the eye. But we are talking of casual, not minute observation. And few minute observers will hesitate to say, that far more untruth than truth, is conveyed by the oft repeated words, he *looks* well, or ill, or better, or worse.

Wonderful is the way in which people will go upon the slightest observation, or often upon no observation at all, or upon some *saw*, which the world's experience, if it had any, would have pronounced utterly false long ago.

I have known patients dying of sheer pain, exhaustion, and want of sleep, from one of the most lingering and painful diseases known, preserve, till within a few days of death, not only the healthy color of the cheek, but the mottled appearance of a robust child. And scores of times have I heard these unfortunate creatures assailed with, "I am glad to see you looking so well;" "I see no reason why you should not live till ninety years of age;" "Why don't you take a little more exercise and amusement," with all other commonplaces with which we are so familiar.

There is, unquestionably, a physiognomy of disease. Let the nurse learn it.

The experienced nurse can always tell that a person has taken a narcotic the night before, by the patchiness of the color about the face, when the reaction of depression has set in; that very color which the inexperienced will point to as a proof of health.

There is, again, a faintness, which does not betray itself by the color at all, or in which the patient becomes brown instead of white. There is a faintness of another kind which, it is true, can always be seen by the paleness.

But the nurse seldom distinguishes. She will talk to the patient, who is too faint to move, without the least scruple, unless he is pale, and unless, luckily for him, the muscles of the throat are affected and he loses his voice.

Yet, these two faintnesses are perfectly distinguishable by the mere countenance of the patient.

Again, the nurse must distinguish between the idiosyncracies of patients. One likes to suffer out all his suffering alone, to be as little looked after as possible. Another likes to be perpetually made much of and pitied, and to have some one always by him. Both these peculiarities might be observed and indulged much more than they are. For quite as often does it happen that a busy attendance is forced upon the first patient, who wishes for nothing but to be "let alone," as that the second is left to think himself neglected.

Again, I think that few things press so heavily on one suffering from long and incurable illness, as the necessity of recording in words from time to time, for the information of the nurse, who will not otherwise see, that he can not do this or that, which he could do a month or a year ago. What is a nurse there for if she can not observe these things for herself? Yet I have known—and known, too, among those, and *chiefly* among those—whom money and position put in possession of every thing which money and position could give—I have known, I say, more accidents (fatal, slowly or rapidly), arising from this want of observation among nurses than from almost anything else. Because a patient could get out of a warm bath alone a month ago—because a patient could walk as far as his bell a week ago, the nurse concludes that he can do so now. She has never observed the change; and the patient is lost from being left in a helpless state of exhaustion, till some one accidentally comes in. And this not from any unexpected apoplectic, paralytic, or fainting fit (though even these could be expected far more, at least, than they are now, if we did but *observe*). No, from the unexpected, or to be expected, inevitable, visible, calculable, uninterrupted increase of weakness, which none need fail to observe.

Again, a patient not usually confined to bed, is com-

pelled by an attack of diarrhœa, vomiting, or other accident, to keep his bed for a few days; he gets up for the first time, and the nurse lets him go into another room, without coming in, a few minutes afterward, to look after him. It never occurs to her that he is quite certain to be faint, or cold, or to want something. She says, as her excuse, Oh, he does not like to be fidgetted after. Yes, he said so some weeks ago; but he never said he did not like to be "fidgetted after," when he is in a state he is in now; and if he did, you ought to make some excuse to go in to him. More patients have been lost in this way than is at all generally known, viz: from relapse brought on by being left for an hour or two faint, or cold, or hungry, after getting up for the first time.

Yet it appears that scarcely any improvement in the faculty of observing is being made. Vast has been the increase of knowledge in pathology—that science which teaches us the final change produced by disease on the human frame—scarce any in the art of observing the signs of the change while in progress. Or, rather, is it not to be feared that observation, as an essential part of medicine, has been declining?

Which of us has not heard fifty times, from one or another, a nurse, or a friend of the sick—aye, and a medical friend too, the following remark: "So A is worse, or B is dead. I saw him the day before; I thought him so much better; there certainly was no appearance from which one could have expected so sudden (?) a change." I have never heard any one say, though one would think it the more natural thing, "There *must* have been *some* appearance, which I should have seen if I had but looked; let me try and remember what there was, that I may observe another time." No; this is not what people say. They boldly assert that there was nothing to observe, not that their observation was at fault.

Let people who have to observe sickness and death look back and try to register in their observation the appear-

ances which have preceded relapse, attack, or death, and not assert that there were none, or that there were not the *right* ones.*

A want of the habit of observing conditions, and an inveterate habit of taking averages, are each of them often equally misleading.

Men whose profession, like that of medical men, leads them to observe only, or chiefly, palpable and permanent organic changes, are often just as wrong in their opinion of the result as those who do not observe at all. For instance, there is a broken leg; the surgeon has only to look at it once to know; it will not be different if he sees it in the morning to what it would have been had he seen it in the evening. And in whatever conditions the patient is, or is likely to be, there will still be the broken leg, until it is set. The same with many organic diseases. An experienced physician has but to feel the pulse once, and he knows that there is aneurism which will kill sometime or other.

But with the great majority of cases, there is nothing of the kind; and the power of forming any correct opinion as to the result must entirely depend upon an inquiry into all the conditions in which the patient lives. In a complicated state of society in large towns, death, as every one of great experience knows, is far less often produced by any one organic disease than by some illness, after many other diseases, producing just the sum of exhaustion necessary for death. There is nothing so absurd,

* It falls to few ever to have had the opportunity of observing the different aspects which the human face puts on at the sudden approach of certain forms of death by violence; and as it is a knowledge of little use, I only mention it here as being the most startling example of what I mean. In the nervous temperament the face becomes pale, (this is the only recognized effect;) in the sanguine temperament purple; in the bilious yellow, or every manner of color in patches. Now, it is generally supposed that paleness is the one indication of almost any violent change in the human being, whether from terror, disease, or anything else. There can be no more false observation. Granted, it is the one recognized livery, as I have said—*de rigueur* in novels, but nowhere else.

nothing so misleading as the verdict one so often hears: So and so has no organic disease—there is no reason why he should not live to extreme old age; sometimes the clause is added, sometimes not: Provided he has quiet, good food, good air, etc., etc., etc.: the verdict is repeated by ignorant people *without* the latter clause; or there is no possibility of the conditions of the latter clause being obtained; and this, the *only* essential part of the whole, is made of no effect. I have heard a physician, deservedly eminent, assure the friends of a patient of his recovery. Why? Because he had now prescribed a course, every detail of which the patient had followed for years; and because he had forbidden a course which the patient could not by any possibility alter.*

* I have known two cases, the one of a man who intentionally and repeatedly displaced a dislocation, and was kept and petted by all the surgeons; the other of one who was pronounced to have nothing the matter with him, there being no organic change perceptible, but who died within the week. In both these cases it was the nurse, who, by accurately pointing out what she had accurately observed, to the doctors, saved the one case from persevering in a fraud, the other from being discharged when actually in a dying state.

I will even go further and say, that in diseases which have their origin in the feeble or irregular action of some function, and not in organic change, it is quite an accident if the doctor, who sees the case only once a day, and generally at the same time, can form any but a negative idea of its real condition. In the middle of the day, when such a patient has been refreshed by light and air, by his tea, his beef-tea, and his brandy, by hot bottles to his feet, by being washed and by clean linen, you can scarcely believe that he is the same person as lay with a rapid fluttering pulse, with puffed eyelids, with short breath, cold limbs, and unsteady hands, this morning. Now, what is a nurse to do in such a case? Not cry, "Lord, bless you, sir, why you'd have thought he were a dying all night." This may be true, but it is not the way to impress with the truth a doctor, more capable of forming a judgment from the facts, if he did but know them, than you are. What he wants is not your opinion, however respectfully given, but your facts. In all diseases it is important, but in diseases which do not run a distinct and fixed course, it is not only important, it is essential, that the facts the nurse alone can observe should be accurately observed, and accurately reported to the doctor.

I must direct the nurse's attention to the extreme variation there is not unfrequently in the pulse of such patients during the day. A very common case is this: Between 3 and 4 A. M., the pulse becomes quick, perhaps 130, and so thready it is not like a pulse at all, but like a string vibrating just underneath

Undoubtedly a person of no scientific knowledge whatever, but of observation and experience in these kinds of conditions, will be able to arrive at a much truer guess as to the probable duration of life of members of a family or inmates of a house, than the most scientific physician to whom the same persons are brought to have their pulse felt; no inquiry being made into their conditions.

In Life Insurance, and such like societies, were they, instead of having the person examined by the medical man, to have the houses, conditions, ways of life, of these persons examined, at how much truer results would they arrive! W. Smith appears a fine hale man, but it might be known that the next cholera epidemic he runs a bad

the skin. After this the patient gets no more sleep. About midday the pulse has come down to 80; and though feeble and compressible, is a very respectable pulse. At night, if the patient has had a day of excitement, it is almost imperceptible. But, if the patient has had a good day, it is stronger and steadier, and not quicker than at midday. This is a common history of a common pulse; and others, equally varying during the day, might be given. Now, in inflammation, which may almost always be detected by the pulse, in typhoid fever, which is accompanied by the low pulse that nothing will raise, there is no such great variation; and doctors and nurses become accustomed not to look for it. The doctor indeed cannot. But the variation is in itself an important feature.

Cases like the above often "go off rather suddenly," as it is called, from some trifling ailment of a few days, which just makes up the sum of exhaustion necessary to produce death. And everybody cries, Who would have thought it? except the observing nurse, if there is one, who had always expected the exhaustion to come, from which there would be no rally, because she knew the patient had no capital in strength on which to draw, if he failed for a few days to make his barely daily income in sleep and nutrition.

I have often seen really good nurses distressed, because they could not impress the doctor with the real danger of their patient; and quite provoked because the patient "would look" either "so much better" or "so much worse" than he really is "when the doctor was there." The distress is very legitimate, but it generally arises from the nurse not having the power of laying clearly and shortly before the doctor the facts from which she derives her opinion, or from the doctor being hasty and inexperienced, and not capable of eliciting them. A man who really cares for his patients will soon learn to ask for and appreciate the information of a nurse, who is at once a careful observer and a clear reporter.

chance. Mr. and Mrs. J. are a strong, healthy couple, but it might be known that they live in such a house, in such a part of London, so near the river that they will kill four-fifths of their children: which of the children will be the ones to survive might also be known.

Averages again seduce us away from minute observation. "Average mortalities" merely tell that so many per cent. die in this town, and so many in that, per annum. But whether A or B will be among these, the "average rate" of course does not tell. We know, say, that from twenty-two to twenty-four per thousand will die in London next year; but minute inquiries into conditions enable us to know that in such a district, nay, in such a street, or even on one side of that street, in such a particular house, or even on one floor of that particular house, will be the excess of mortality, that is, the person will die who ought not to have died before old age.

Now, would it not very materially alter the opinion of whoever were endeavoring to form one, if he knew that from that floor of that house, of that street, the man came?

Much more precise might be our observations even than this, and much more correct our conclusions.

It is well known that the same names may be seen constantly recurring on workhouse books for generations; that is, the persons were born and brought up, generation after generation, in the conditions which make paupers. Death and disease are like the workhouse, they take from the same family, the same house, or, in other words, the same conditions. Why will we not observe what they are?

The close observer may safely predict that such a family, whether its members marry or not, will become extinct; that such another will degenerate morally and physically. But who learns the lesson? On the contrary, it may be well known that the children die in such a house at the rate of eight out of ten; one would think that nothing

more need be said ; for how could Providence speak more distinctly ? yet nobody listens, the family goes on living there till it dies out, and then some other family takes it. Neither would they listen "if one rose from the dead."

In dwelling upon the vital importance of *sound* observation, it must never be lost sight of what observation is for. It is not for the sake of piling up miscellaneous information or curious facts, but for the sake of saving life and increasing health and comfort. The caution may seem useless, but it is quite surprising how many men (some women do it too) practically behave as if the scientific end were the only one in view, or as if the sick body were but a reservoir for stowing medicines into, and the surgical disease only a curious case the sufferer has made for the attendant's special information. This is really no exaggeration. You think, if you suspected your patient was being poisoned, say, by a copper kettle, you would instantly, as you ought, cut off all possible connection between him and the suspected source of injury, without regard to the fact that a curious mine of observation is thereby lost. But it is not every body who does so, and it has actually been made a question of medical ethics, what should the medical man do if he suspected poisoning ? The answer seems a very simple one—insist on a confidential nurse being placed with the patient, or give up the case.

And remember, every nurse should be one who is to be depended upon—in other words, capable of being a "confidential" nurse. She does not know how soon she may find herself placed in such a situation ; she must be no gossip, no vain talker ; she should never answer questions about her sick except to those who have a right to ask them ; she must, I need not say, be strictly sober and honest ; but more than this, she must be a religious and devoted woman ; she must have a respect for her own calling, because God's precious gift of life is often literally placed in her hands ; she must be a sound,

and close, and quick observer; and she must be a woman of delicate and decent feeling.

To return to the question of what observation is for: It would really seem as if some had considered it as its own end, as if detection, not cure, was their business. Nay, more, in a recent celebrated trial, three medical men, according to their own account, suspected poison, prescribed for dysentery, and left the patient to the poisoner. This is an extreme case; but in a small way, the same manner of acting falls under the cognizance of us all. How often the attendants of a case have stated that they knew perfectly well that the patient could not get well in such an air, in such a room, or under such circumstances, yet have gone on dosing him with medicine, and making no effort to remove the poison from him, or him from the poison which they knew was killing him; nay, more, have sometimes not so much as mentioned their conviction in the right quarter—that is, to the only person who could act in the matter.

CONCLUSION.

The whole of the preceding remarks apply even more to children and to puerperal woman than to patients in general. They also apply to the nursing of surgical, quite as much as to that of medical cases. Indeed, if it be possible, cases of external injury require such care even more than sick. In surgical wards, one duty of every nurse certainly is *prevention*. Fever, or hospital gangrene, or purulent discharge of some kind may else supervene. Has she a case of compound fracture, of amputation, or of erysipelas, it may depend very much on how she looks upon the things enumerated in these notes, whether one or other of these hospital diseases attacks her patient or not. If she allows her ward to become filled with the peculiar close foetid smell, so apt to be produced among surgical cases, especially where there is great sup-

puration and discharge, she may see a vigorous patient in the prime of life gradually sink and die where, according to all human probability, he ought to have recovered. The surgical nurse must ever be on the watch, ever on her guard, against want of cleanliness, foul air, want of light, and of warmth.

Nevertheless, let no one think that because *sanitary* nursing is the subject of these notes, therefore, what may be called the handicraft of nursing, is to be undervalued. A patient may be left to bleed to death in a sanitary palace. Another, who can not move himself, may die of bed-sores, because the nurse does not know how to change and clean him, while he has every requisite of air, light, and quiet. But nursing, as a handicraft, has not been treated of here for three reasons: 1. That these notes do not pretend to be a manual for nursing, any more than for cooking for the sick. 2. That the writer, who has herself seen more of what may be called surgical nursing, *i. e.*, practical manual nursing, than, perhaps, any one in Europe, honestly believes that it is impossible to learn it from any book, and that it can only be thoroughly learnt in the wards of a hospital; and she also honestly believes that the perfection of surgical nursing may be seen practised by the old-fashioned "sister" of a London hospital, as it can be seen nowhere else in Europe. 3. While thousands die of foul air, etc., who have this surgical nursing to perfection, the converse is comparatively rare.

To revert to children. They are much more susceptible than grown people to all noxious influences. They are affected by the same things, but much more quickly and seriously, viz: by want of fresh air, of proper warmth, want of cleanliness in house, clothes, bedding, or body, by startling noises, improper food, or want of punctuality, by dullness and by want of light, by too much or too little covering in bed, or when up, by want of the spirit of management generally in those in charge of them. One can, therefore, only press the importance, as being yet

greater in the case of children, greatest in the case of sick children, of attending to these things.

That which, however, above all, is known to injure children seriously, is foul air, and most seriously at night. Keeping the rooms where they sleep tight shut up, is destruction to them. And, if the child's breathing be disordered by disease, a few hours only of such foul air may endanger its life, even where no inconvenience is felt by grown up persons in the same room.

The following passages, taken out of an excellent "Lecture on Sudden Death in Infancy and Childhood," just published, show the vital importance of careful nursing of children: "In the great majority of instances, when death suddenly befalls the infant or young child, it is an *accident*; it is not a necessary result of any disease from which it is suffering."

It may be here added, that it would be very desirable to know how often death is, with adults, "not a necessary, inevitable result of any disease." Omit the word "sudden" (for *sudden* death is comparatively rare in middle age), and the sentence is almost equally true for all ages.

The following causes of "accidental" death in sick children are enumerated: "Sudden noises, which startle; a rapid change of temperature, which chills the surface, though only for a moment; a rude awakening from sleep, or even an over-hasty or over-full meal;" "any sudden impression on the nervous system; any hasty alteration of posture; in short, any cause whatever by which the respiratory process may be disturbed."

It may again be added, that, with very weak adult patients, these causes are also (not often "suddenly fatal," it is true, but), very much oftener than is at all generally known, irreparable in their consequences.

Both for children and for adults, both for sick and for well (although more certainly in the case of sick children than in any others), I would here again repeat, the most frequent and most fatal cause of all is sleeping, for even a

few hours, much more for weeks and months, in foul air, a condition which, more than any other condition, disturbs the respiratory process, and tends to produce "accidental" death in disease.

I need hardly here repeat the warning against any confusion of ideas between cold and fresh air. You may chill a patient fatally without giving him fresh air at all. And you can quite well, nay, much better, give him fresh air without chilling him. This is the test of a good nurse.

In cases of long recurring faintness from disease, for instance, especially disease which affects the organs of breathing, fresh air to the lungs, warmth to the surface, and often (as soon as the patient can swallow), hot drink; these are the right remedies and the only ones. Yet, oftener than not, you see the nurse or mother just reversing this; shutting up every cranny through which fresh air can enter, and leaving the body cold, or perhaps throwing a greater weight of clothes upon it, when already it is generating too little heat.

"Breathing carefully, anxiously, as though respiration were a function which required all the attention for its performance," is cited as a not unusual state in children, and as one calling for care in all the things enumerated above. That breathing becomes an almost voluntary act, even in grown up patients who are very weak, must often have been remarked.

"Disease having interfered with the perfect accomplishment of the respiratory function, some sudden demand for its complete exercise, issues in the sudden stand-still of the whole machinery," is given as one process—"life goes out for want of nervous power to keep the vital functions in activity," is given as another, by which "accidental" death is most often brought to pass in infancy.

Also, in middle age, both these processes may be seen ending in death, although generally not suddenly. And

I have seen, even in middle age, the "*sudden stand-still*" here mentioned, and from the same causes.

To sum up: the answer to two of the commonest objections urged, one by women themselves, the other by men, against the desirableness of sanitary knowledge for women, *plus* a caution, comprises the whole argument for the art of nursing.

(1.) It is often said by men, that it is unwise to teach women any thing about these laws of health, because they will take to physicking—that there is a great deal too much of amateur physicking as it is, which is indeed true. One eminent physician told me that he had known more calomel given, both at a pinch and for a continuance, by mothers, governesses, and nurses, to children, than he had ever heard of a physician prescribing in all his experience. Another says, that women's only idea in medicine is calomel and aperients. This is, undeniably, too often the case. There is nothing ever seen in any professional practice like the reckless physicking by amateur females.*

*I have known many ladies who, having once obtained a blue pill prescription from a physician, gave and took it as a common aperient two or three times a week—with what effect may be supposed. In one case I happened to be the person to inform the physician of it, who substituted for the prescription a comparatively harmless aperient pill. The lady came to me and complained that it "did not suit her half so well."

If women will take or give physic, by far the safest plan is to send for the doctor every time—for I have known ladies who both gave and took physic, who would not take the pains to learn the names of the commonest medicines, and confounded, *e. g.*, colocyath with colchicum. This is playing with sharp edged tools with a vengeance.

There are excellent women who will write to London to their physician that there is much sickness in their neighborhood in the country, and ask for some prescription from him, which they used to like themselves, and then give it to all their friends and to all their poorer neighbors who will take it. Now, instead of giving medicine, of which you can not possibly know the exact and proper application, nor all its consequences, would it not be better if you were to persuade and help your poorer neighbors to remove the dunghill from before the door, to put in a window which opens, or an Arnott's ventilator, or to cleanse and limewash the cottages? Of these things the benefits are sure. The benefits of the inexperienced administration of medicines are by no means so sure

But this is just what the really experienced and observing nurse does *not* do ; she neither physicks herself nor others. And to cultivate in things pertaining to health, observation and experience in women who are mothers, governesses, or nurses, is just the way to do away with amateur physicking, and if the doctors did but know it, to make the nurses obedient to them—helps to them instead of hindrances. Such education in women would indeed diminish the doctor's work—but no one really believes that doctors wish that there should be more illness, in order to have more work.

(2.) It is often said by women, that they can not know any thing of the laws of health, or what to do to preserve their children's health, because they can know nothing of "pathology," or can not "dissect"—a confusion of ideas which it is hard to attempt to disentangle. Pathology teaches the harm that disease has done. But it teaches nothing more. We know nothing of the principle of health, the positive of which pathology is the negative, except from observation and experience. And nothing but observation and experience will teach us the ways to maintain or to bring back the state of health. It is often thought that medicine is the curative process. It

Homœopathy has introduced one essential amelioration in the practice of physic by amateur females; for its rules are excellent, its physicking comparatively harmless; the "globule" is the one grain of folly which appears to be necessary to make any good thing acceptable. Let, then, women, if they will give medicine, give homœopathic medicine. It won't do any harm.

An almost universal error among women is the supposition that every body must have the bowels opened once in every twenty-four hours, or must fly immediately to aperients. The reverse is the conclusion of experience.

This is a doctor's subject, and I will not enter more into it; but will simply repeat, do not go on taking or giving to your children your abominable courses of aperients, without calling in the doctor.

It is very seldom, indeed, that by choosing your diet, you can not regulate your own bowels; and every woman may watch herself to know what kind of diet will do this; I have known deficiency of meat produce constipation, quite as often as deficiency of vegetables; baker's bread much oftener than either. Home-made brown bread will oftener cure it than any thing else.

is no such thing; medicine is the surgery of functions, as surgery proper is that of limbs and organs. Neither can do any thing but remove obstructions; neither can cure; nature alone cures. Surgery removes the bullet out of the limb, which is an obstruction to cure, but nature heals the wound. So it is with medicine—the function of an organ becomes obstructed—medicine, so far as we know, assists nature to remove the obstruction, but does nothing more. And what nursing has to do in either case, is to put the patient in the best condition for nature to act upon him. Generally, just the contrary is done. You think fresh air, and quiet and cleanliness, extravagant, perhaps dangerous luxuries, which should be given to the patient only when quite convenient, and medicine the *sine qua non*, the panacea. If I have succeeded in any measure in dispelling this illusion, and in showing what true nursing is, and what it is not, my object will have been answered.

Now for the caution:

(3.) It seems a commonly received idea among men, and even among women themselves, that it requires nothing but a disappointment in love, the want of an object, a general disgust, or incapacity for other things, to turn a woman into a good nurse.

This reminds one of the parish where a stupid old man was set to be schoolmaster because he was “past keeping the pigs.”

Apply the above receipt for making a good nurse, to making a good servant, and the receipt will be found to fail.

Yet popular novelists of recent days have invented ladies disappointed in love, or fresh out of the drawing-room, turning into the war hospitals to find their wounded lovers, and when found, forthwith abandoning their sick ward for their lover, as might be expected. Yet, in the estimation of the authors, these ladies were none the worse for that, but, on the contrary, were heroines of nursing.

What cruel mistakes are sometimes made by benevolent men and women, in matters of business, about which they can know nothing, and think they know a great deal.

The everyday management of a large ward, let alone of a hospital—the knowing what are the laws of life and death for men, and what the laws of health for wards—(and wards are healthy or unhealthy, mainly according to the knowledge or ignorance of the nurse)—are not these matters of sufficient importance and difficulty to require learning by experience and careful inquiry, just as much as any other art? They do not come by inspiration to the lady disappointed in love, nor to the poor workhouse drudge hard up for a livelihood.

And terrible is the injury which has followed to the sick from such wild notions!

In this respect, (and why is it so?) in Roman Catholic countries, both writers and workers are, in theory at least, far before ours. They would never think of such a beginning for a good working Superior or Sister of Charity. And many a Superior has refused to admit a *postulant* who appeared to have no better “vocation” or reasons for offering herself than these.

It is true *we* make “no vows.” But is a “vow” necessary to convince us that the true spirit for learning any art, more especially an art of charity, aright, is not a disgust to every thing or something else? Do we really place the love of our kind (and of nursing, as one branch of it) so low as this? What would the Mere Angelique of Port Royal, what would our own Mrs. Fry have said to this?

NOTE.—I would earnestly ask my sisters to keep clear of both the jargons now current every-where (for they are equally jargons); of the jargon, namely, about the rights of women, which urges women to do all that men do, including the medical and other professions, merely because men do it, and without regard to whether this is the best that women can do; and of the jargon which urges women to do nothing that men do, merely because they are women, and should be “recalled to a sense of their duty as women,” and because “this is women’s work,” and “that is men’s,” and “these are things

which women should not do," which is all assertion, and nothing more. Surely woman should bring the best she has, whatever that is, to the work of God's world, without attending to either of these cries. For what are they, both of them, the one just as much as the other, but listening to the "what people will say," to opinion, to the voices from without? And, as a wise man has said, no one has ever done any thing great or useful, by listening to the voices from without.

You do not want the effect of your good things to be, "How wonderful for a woman!" nor would you be deterred from good things by hearing it said, "Yes, but she ought not to have done this, because it is not suitable for a woman." But you want to do the thing that is good, whether it is "suitable for a woman" or not.

It does not make a thing good, that it is remarkable that a woman should have been able to do it. Neither does it make a thing bad, which would have been good had a man done it, that it has been done by a woman.

Oh, leave these jargons, and go your way straight to God's work, in simplicity and singleness of heart.

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A

FAMILIAR TREATISE

ON

MEDICINE:

BY

JOHN M. SCUDDER, M. D.,

PROFESSOR OF THE THEORY AND PRACTICE OF MEDICINE IN THE ECLECTIC MEDICAL
INSTITUTE, AUTHOR OF "A PRACTICAL TREATISE ON DISEASES OF WOMEN," "THE
ECLECTIC PRACTICE OF MEDICINE," "THE ECLECTIC MATERIA MEDICA AND
THERAPEUTICS," "ON THE USE OF INHALATIONS," ETC.

VOLUME II.

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IN THE CLERK'S OFFICE OF THE DISTRICT COURT OF THE UNITED STATES, FOR THE
SOUTHERN DISTRICT OF OHIO.

P R E F A C E .

A domestic manual on obstetrics, diseases of women, and the care and management of children, is much needed, more so, probably, than a domestic practice. The ideas of even our better informed class of women, as regards their own systems, and the functions of reproduction and child-bearing are very vague and crude, while a large number know nothing but what they have experienced. It is a woman's privilege to know all about herself, and any situation in which she may be placed, and to be able to take care of her own health, and give that assistance to others which is sometimes necessary, in an intelligent manner. A specious mock modesty has kept this knowledge from our country women, and they themselves are mostly to blame for this. This rejection of books, that plainly describe such things as should be known by all, belongs to the same species of modesty as that which neglects to instruct a daughter as regards the changes that naturally take place with her, and the new duties she will be called to perform in wedded life.

"To the pure mind all things are pure," and it is the intention of the author to plainly describe the various functions of the female, especially with regard to reproduction, as he would if he was instructing a wife or a daughter

They are subjects closely connected with our holiest relations in life, belonging exclusively to the home and family circle, and should be looked upon in the same light that we regard any other useful knowledge.

Many a mother has lost her health by a want of proper knowledge of the subjects here described, and many young women have become unfitted for mothers, or any other useful purpose in life, by violations of nature's plainest laws. As the health and vigor of our people depends upon the health and vigor of our mothers, should we not use all proper means to diffuse a knowledge of nature's laws, so that each may be able to live in accordance with them, and thus add to their own comfort and the well being of those who are to succeed them?

If perchance this volume should fall into the hands of those who will read it to pander to a prurient imagination, the author begs that they will lay it to one side, or give it to some person of their acquaintance who will make good use of it; and if the knowledge contained within it is turned to bad purpose, it will be contrary to the design of the author.

98 West Sixth street, Cincinnati.

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VOLUME II.

This work has been divided into two volumes in order that a more complete description of the anatomy, physiology, and diseases of women might be given than would have been proper, if published in one volume. This is intended especially for women, and points out to them clearly the various changes that take place in their bodies, and the means of preserving the health.

The functions of MENSTRUATION, CONCEPTION, GESTATION, and LABOR, are all explained, and such rules deduced as, if followed, will lead to regularity and health. Many delicate subjects are here discussed freely, and yet in such a manner as not to offend the most fastidious, and all information that can be of benefit to a woman in any condition, is candidly given.

The description of pregnancy, abortion, and labor, and the management of each, is full and complete, so that persons who carefully read it will find themselves possessed of that practical knowledge so often necessary in these cases. In addition, the diseases of women and their treatment, is plainly described, as well as the care and management of children. It is a book that should be carefully read by every mother in the land.

DOMESTIC MEDICINE.

VOLUME II.

MIDWIFERY, DISEASES OF WOMEN, CARE AND MANAGEMENT OF CHILDREN.

Perfect in her organization, woman is fitted for the twofold office of a companion for man and the mother of children. Her perceptions are quick, emotions are strong, and sympathy and love are the most striking elements of her mind. Thus is she adapted to smooth the asperities of life, to call our better feelings into action and to give that love and care that are so necessary to the helpless young of the human species. Woman is the center of the home circle, and on her, to a considerable extent, depends the physical and mental well being of its members. Properly prepared for her duties, both physically and mentally, there can be no doubt but that she will enjoy more happiness in this her proper sphere than in any other in which she could be placed.

For one, I am willing to admit *all* the rights that women are inclined to claim. There are some who cannot be contented with home duties and home pleasures, and such may properly be physicians, ministers, farmers, mechanics or whatever may suit their taste. Some women have mind enough for any purpose, and were their bodies as well adapted to their unnatural vocations as their minds, they would be well suited. A very large majority, however,

find their happiness in the vocation nature has designed for them; the center of a happy home, and the mother of our future men and women. So definitely does nature point to this in the female organization, that it seems useless to engage in any discussion on the subject.

The differences between the male and female are very marked: the one is coarse in his organization, the other delicate; the one large and angular, the other small and with rounded outline; in the one strength, and in the other beauty. The differences are as marked in mind as in body; whilst the man has better developed reasoning faculties, women's perception is quick and her emotions strong. These differences are developed only with the development of the sexual organs; as up to the age of puberty we observe but very little difference in the sexes.

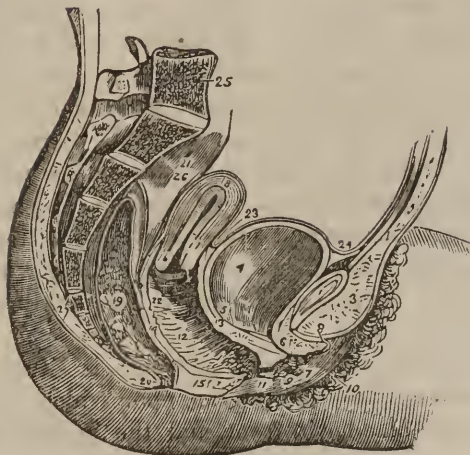
FEMALE ORGANS OF GENERATION.

The organs of generation in the female consist of the sexual opening or *vulva*, of a canal that leads upward from it—the *vagina*, of the uterus, fallopian tubes, and the ovaries. Associated with these are the bladder and its excretory duct, the urethra.

The external parts are supplied with numerous secretory glands, that furnish a material for their protection. If allowed to accumulate, it not unfrequently gives rise to irritation and a very unpleasant species of leucorrhœa, with subsequent internal weakness. Cold water, or in some cases castile soap and water is all that is requisite for a cure, and especially as a preventive.

Pruritus, or itching of these parts, is sometimes a very troublesome affection, being so severe in some cases as to prevent rest either day or night. This itching will readily yield in most cases to an application of—take borax, one drachm; morphia, five grains; to water, eight ounces: use as a wash. Or to half a pound of common tar add one quart of water: stir it, and let it stand for two or three days and use the water as a wash.

FIG. 1.

*A Side View of the Viscera of the Female Pelvis.*

1. The symphysis pubis; to the upper part of which the tendon of the rectus muscle is attached. 2. The abdominal parietes. 3. The collection of fat forming the prominence of the mons veneris. 4. The urinary bladder. 5. The entrance of the left ureter. 6. The canal of the urethra, converted into a mere fissure by the contraction of its walls. 7. The meatus urinarius. 8. The clitoris, with its præputium, divided through the middle. 9. The left nymphæ. 10. The left labium majus. 11. The meatus of the vagina, narrowed by the contraction of its sphincter. 12. 22. The canal of the vagina upon which the transverse rugæ are apparent. 13. The thick wall of separation between the base of the bladder and the vagina. 14. The wall of separation between the base of the bladder and the vagina. 15. The perineum. 16. The os uteri. 17. Its cervix. 18. The fundus uteri. The cavitas uteri is seen along the center of the organ. 19. The rectum, showing the disposition of its mucous membrane. 20. The anus. 21. The upper part of the rectum invested by the peritoneum. 23. The utero-vesical fold of peritoneum. The recto-uterine fold is seen between the rectum and the posterior wall of the vagina. 24. The reflection of the peritoneum, from the apex of the bladder upon the urachus to the internal surface of the abdominal parietes. 25. The last lumbar vertebra. 26. The sacrum. 27. The coccyx.

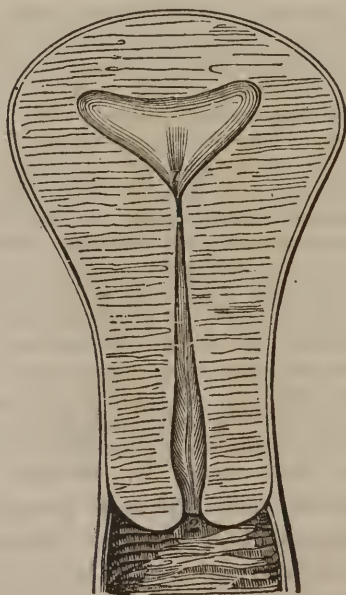
The VAGINA is the canal that leads upward to the womb and gives it support. It is formed of fibrous tissue, lined by a mucous membrane, its walls being about the one-eighth of an inch in thickness. They are so elastic as to permit of distension to the full size of the pelvis without

danger of rupture. Its posterior wall is closely connected with the lower canal or *rectum*, and its anterior is still more closely attached to the bladder, and has the *water-passage* or urethra excavated within it. See Fig. 1. In its normal condition, the walls of this canal are firm and elastic; when they become relaxed, there is always displacement of the womb and unpleasant sensations.

Its mucous membrane is very vascular, and abundantly supplied with nerves and mucous follicles. Hence, when diseased, the general system sympathizes with it to a considerable degree, and there is frequently a profuse discharge of mucus.

THE UTERUS.—The uterus or womb is situated at the upper extremity of the vagina, upon which it rests, and between the bladder in front, and the rectum behind, as

FIG. 2.

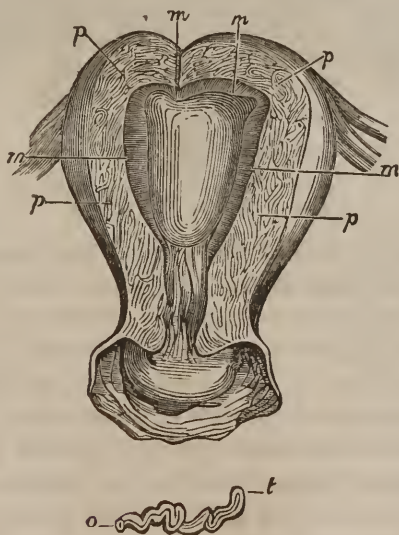


The Cavities of the Uterus and Cervix in their Normal Condition.

shown in Fig. 1. In its natural condition, it is pear-shaped; about three inches in its longest diameter, two inches wide, and one and a half inches thick. It is divided into a neck, body, and fundus; the first being the lower constricted portion; the second, the middle portion; and the third, the superior portion. It contains a small cavity as seen in Fig. 2, which is divided into two parts, the cavity of the body and the cavity of the neck. This is lined by mucous membrane, which is smooth in the cavity of the body, and laid in folds in the cavity of the cervix; the latter is profusely supplied with mucous follicles, which furnish a secretion to seal up the womb during pregnancy, and when diseased, an abundant, white-of-egg-looking discharge.

The walls of the uterus are thick, and as will be seen by Fig. 3, are composed of three coats. The external

FIG. 3.



The Tissues of the Uterus.

p The muscular tissue; *m m* the internal lining or mucous membrane · *o t*
a tubular gland.

one is thin and delicate, and is derived from the serous membrane of the abdomen. The middle one is thick, and composed of muscular fibre; it is dense and hard in the unimpregnated womb, but during *gestation* it increases in thickness and the muscular fibres are remarkably developed, so that at the commencement of labor it is one of the most powerful muscles of the body, and capable of forcing the child through the pelvis and soft structures below. The mucous membrane of the cavity is formed of tubular glands as seen at *ot* which are supposed to furnish the menstrual discharge.

FIG. 4.

*The Vessels of the Uterus.*

The womb is abundantly supplied with blood-vessels as seen in Fig. 4, representing the organ during gestation. Owing to this profuse supply of blood, we can readily understand the serious injury that may result to the general system from a derangement of its circulation by arrest of the monthly periods or other causes.

The uterus and ovaries likewise receive a very abundant supply of nerves (See Fig. 5), derived from two sources. The first are derived from the *sympathetic* or vegetative system of nerves, and associate it with the digestive and assimilative organs. This is necessary for the growth and development of the child in the womb,

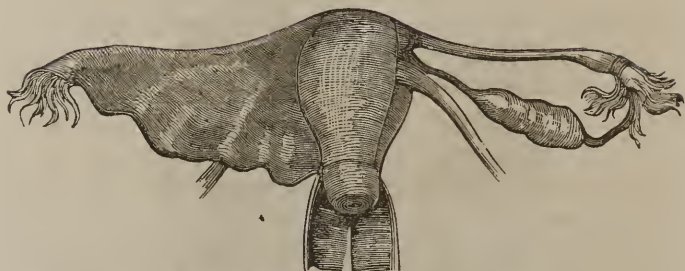
FIG. 5.

*The Nerves of the Uterus.*

and accounts for the morning-sickness and other derangements of the stomach during pregnancy, and for the diseased condition of the stomach and other digestive organs in chronic diseases of the womb. The second are derived from the cerebro-spinal system of nerves, and it is thus closely connected with the nerves of sensation and the mind; hence the *hysterical* manifestations that so frequently flow from functional or structural disease of these organs.

FALLOPIAN TUBES.—Passing from the upper part of the uterus on either side are two small tubes, four or five inches in length, which go to the ovaries. The canal through them is very small, but sufficient for the passage of the human egg from the ovaries to the uterus. Their outer extremity is expanded (See Fig. 6), and furnished with erectile fingers to grasp the ovary during ovulation, and thus prevent the escape of the egg into the cavity of the abdomen.

FIG. 6.

*The Uterus, Ovaries, Fallopian Tubes and Lateral Ligaments.*

OVARIES.—The ovaries are two whitish flattened bodies about the shape and size of an *almond* with its shell. They have a strong external fibrous investment, but internally a spongy vascular tissue in which the human egg is generated. Upon the external surface from ten to thirty vesicles may be seen filled with a transparent, coagulable fluid; these are called *graffian* vesicles, and contain the egg. One of them comes to maturity at each monthly period, and rupturing, discharges its contents into the fallopian tube, whence it is conveyed into the uterus. Thus these small organs furnish the germ for a future being, at each menstrual period.

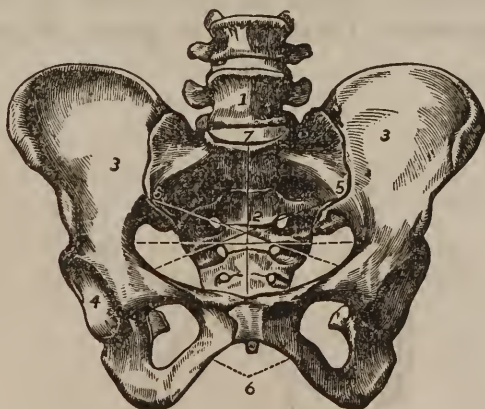
BLADDER.—The bladder in the female, as will be seen by Fig. 1, is situated immediately in front of the uterus and vagina. It does not differ from that in the male except that it is usually larger. Its situation is such, however, that if allowed to become unduly distended, it will throw the womb out of place, and sometimes give rise to serious difficulty.

THE URETHRA—In the female, is short, about two inches in length, and included in the anterior wall of the vagina. Its external opening will be found immediately under the bones of the anterior part of the pelvis, and is usually marked by a small, cushion-like elevation.

MUSCLES OF THE PELVIS.—The muscles of the pelvis are so arranged as to give efficient support to the organs heretofore described, and to firmly close the outlet of the pelvis. One pair arise far within the pelvis and pass downward, and being broad, they form a muscular basin. Others pass from before backward, and from side to side. As long as these muscles retain their normal tonicity there can be but little displacement of internal organs, and when such occurs, the best means of treatment is to restore their original strength.

In addition to this the uterus has four ligaments; two are called broad, and consist of the serous membrane reflected from it to the sides of the pelvis, as seen in figure 6; two are called round, and pass upward and outward to be inserted above the external genitals. These ligaments were formerly regarded as the structures that maintained the womb in its proper position, but it is now definitely determined that they have but little to do with it.

FIG. 7.

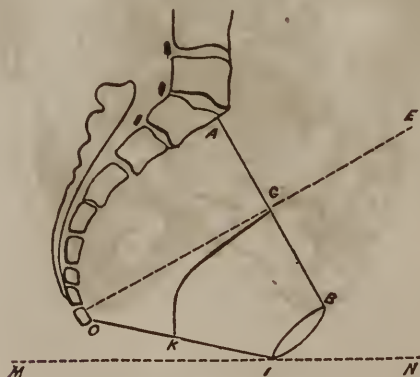
*Bones of the Pelvis.*

BONES OF THE PELVIS.—The pelvis (Fig. 7) is formed of four bones, two of which are a continuation of the spinal column, the others are the hip bones. The *sacrum* (2) is a pyramidal curved bone, forming the greater part of the posterior wall of the pelvis, its curvature is from above downward and forward, forming a cavity in front termed the *hollow of the sacrum*. The *coccyx* (5) is a small pyramidal bone attached to the apex of the sacrum. The hip bones, or *ossa inominata*, one on each side, form the lateral and anterior walls of the pelvis. They are divided into three parts: a superior expanded portion which forms the hip, an inferior portion, on which we sit, and an anterior portion termed the *pubis*.

The bones are firmly bound together by strong ligaments, so that no movement is permitted. The articulations are termed *symphyses*, the two posterior *sacro-iliac* symphyses, the anterior the *pubic* symphysis.

The pelvis is much deeper behind than it is in front, being between five and six inches measured at the sacrum, and but two inches at the pubis. The opening into and above is called the *superior strait* or rim of the pelvis, the opening below is termed the *inferior strait* or outlet, and the space between, the cavity of the pelvis. Figure 8 will

FIG. 8.



Section of the Pelvis.

represent a section of the pelvis in its usual position, the line from *a* to *b*, the plane of the superior strait; the dotted line *e* to *e*, its axis, being the direction in which the child enters the pelvis; the line *f* to *i* the plane of the outlet, and the curved line *g* to *k* the course of the child through the pelvic cavity.

The size of the pelvis is such as to permit the ready passage of the child at full time, without injurious pressure on the soft parts, each diameter being from four to five inches. The pelvis, in this country, is very rarely deformed so as to offer an obstacle to labor.

MENSTRUATION.

Previous to puberty we observe but little difference between the sexes, except possibly that the female is smaller. From the twelfth to the sixteenth year, however, her outline becomes rounder, the breasts developed, and she becomes more modest and retiring in her disposition, her mind appreciating the coming change in her condition. At this time a discharge of blood occurs from the genital organs, which is called the *menses*, but which is usually designated by women as the *courses*, *monthly period*, or *monthly sickness*. In the healthy woman it occurs every lunar month, or about twenty-eight days, the discharge continuing from three to seven days. It varies greatly in quantity, in some being scanty and not amounting to more than from half an ounce to two ounces at a period, while in others several ounces are discharged.

The menstrual fluid is almost pure blood, the only perceptible difference being that it has lost its power of coagulation. Whenever it is changed from this bright, pure condition, it is evident there is some disease.

The menstrual discharge usually appears between the twelfth and sixteenth years, but in some cases it occurs at a later and in others at an earlier period. It comes on at an earlier age in the women of warm climates, and residents

of cities, and later in the inhabitants of cold climates and in the country.

Its first appearance is indicated by the full development of the system, and in many cases by the monthly recurrence of pain in the back and limbs, and a feeling of weight in the pelvis. These symptoms may occur at regular periods for several months, and should be regarded by the mother as an indication that the discharge should appear. At such times let the feet be bathed in warm mustard and water, at bed-time, and give a cup of pennyroyal tea. If there is much sensation of fullness, use the warm hip bath. The young girl should be carefully instructed by her mother preparatory to this change, and cautioned against over exertion and exposure at these times. There is no doubt but this is one of the most important periods of her life, and if this change occurs normally good health may be anticipated; but if arrested or prevented from coming on, by imprudence, the system may become deranged for life. Especially should care be used during the first years of menstruation to prevent an arrest of the discharge, by avoiding exposure, sitting on the damp ground, or stones, getting the feet wet, etc.

Menstruation continues regular, except the periods of gestation and nursing, up to the fortieth or fiftieth year. This period is termed the *change of life*, and is looked forward to with considerable dread by most women. In a majority of cases the discharge is irregular for one or two years before it ceases, sometimes small in quantity, at others profuse, recurring too frequently, and again coming on at longer intervals. Though some women suffer severely at these times, and a few do not pass through the change, a majority have comparatively slight trouble, and are often-times healthier afterward than before.

CAUSES OF MENSTRUATION.—The discharge of blood at the menstrual period is but a symptom of changes going on in the internal organs. Every twenty-eight or thirty days the ovaries mature a graafian vesicle, which con-

tains a human egg. This causes an excitation of the organs, which also extends to the uterus, and in consequence of this there is an increased circulation of blood, which passes off to some extent from the cavity of the uterus. Menstruation does not commence until the ovaries are sufficiently matured to furnish ovules, and it stops whenever these cease to be developed, as during pregnancy, disease of the uterus and ovaries, and at the change of life. The monthly discharge may be taken as a sign of the maturity of the sexual organs, and a capacity for child bearing.

CONCEPTION.

Conception is the fertilization of the egg furnished by the female, with the seminal fluid furnished by the male, and the retention of the fecundated body within the uterus. As a general rule, the egg is furnished by the female only at the period of menstruation, and it escapes from the uterus between the eighth and twelfth day after its separation from the ovary. Therefore impregnation occurs almost universally at the menstrual period, or within six or eight days after its cessation. Thus when it is not deemed desirable to have children, connexion should not take place for twelve or fifteen days from the commencement of menstruation.

The egg having been vivified by contact with the male sperm, is retained within the cavity of the uterus, by the formation of a false membrane, called the *decidua*. In some six weeks it forms an attachment to the uterine wall by the development of the *placenta*, or after-birth, and from this time onward it derives its sustenance from the blood of the mother. From the commencement of its growth, the child is surrounded by its membranes, which contain a considerable quantity of water in which it floats, as seen in figure 9, of a fetus and its membranes at the eighth week.

At the fourth week the embryo has the form of a serpent, about half an inch in length, its head being indicated by a slight swelling, and its eyes by two black points. The arms and legs appear as nipple-like protrusions, and the liver and bladder occupy nearly the whole abdomen.

At two months it is about one and a half inches in length, the extremities are developed so as to show the fingers and toes, there are rudiments of the nose and lips, and the umbilical cord and placenta have been developed.

At three months it is from two to two and a half inches

FIG. 9.



Ovum at Two Months.

in length, and weighs from one to one and a half ounces. The head is very large, the eyelids are developed, and ossification has commenced in the bones.

At four months, it is five or six inches in length, the skin well marked and rosy, the mouth large and open, the nails begin to appear, and the sex can be determined.

At six months it weighs in the neighborhood of one pound, and is from nine to ten inches in length, face of a purplish red, and hair white or silvery.

At seven months its weight is from three to four pounds, and its length from thirteen to fourteen inches. The skin is natural and rosy, but the nails do not yet reach the extremities of the fingers.

At the ninth month its length is from seventeen to twenty-one inches, and its weight from five to nine pounds, and it is perfect in every respect.

A child is capable of respiration between the fifth and sixth months, and may cry when born, but it is not capable of maintaining a separate existence before the seventh month. It is a common impression that a seven months child is more likely to live than one at eight months, and I think that experience goes to prove it.

PREVENTION OF CONCEPTION.

There are many women who have their health permanently impaired, their happiness destroyed, and sink into a premature grave, from too frequent child-bearing. To such, any means which would prevent conception, would be an inestimable blessing. There are others, who do not desire to have an increase in family, because it increases their labors and cares, and confines them to the house; thus, as they think, preventing that enjoyment of life that is their privilege. Others, again, desire some means of prevention, that they may gratify their desires in an unlawful manner; to these, any such means will prove a curse rather than a blessing.

I can well understand why women should be so desirous of means to prevent pregnancy. The lot of most mothers is by no means easy, and, in many cases, their lives are laborious and burthened with cares. A large family is not only a great task on the physical powers in child-bearing, but the continued care that is necessary in their nursing, attention to food, clothing, government and education, is the severest labor that any person could undertake. Still, Providence has mercifully adapted the back to the burthen, and given strength of body and mind to properly fulfill our lot in life. It is no offense, however, to good morals, to use such means as will not interfere with duty and health, to prevent the having of more children than

can be properly cared for. The mother whose health is broken down by rapid child-bearing, can not give that vitality to her offspring that they would receive if she was not thus exhausted; and this physical deterioration of children is a sufficient argument, in these cases, in favor of means to prevent conception.

It may be said, that nature furnishes the proper remedy in the non-intercourse of the sexes, which is true, but without advantage to the mother. She is usually not placed in a position to have much choice, the sexual appetite being so strong as to overcome all prudential considerations.

As before remarked, the menstrual discharge is an indication of the maturity of the human egg, which is capable of impregnation at any period before its escape from the womb, a period of ten or twelve days. The seminal fluid of the male may retain its vitality in the female organs for two or three days. Hence, it is laid down as a general law, that conception takes place from connection two or three days prior to, during, or five or six days after the cessation of menstruation. If, therefore, it is desirable to avoid having children, no connection should take place at this time. Though this holds good in a majority of cases, there are some exceptions in which the egg is produced in the intermediate period from sexual excitation.

As conception results from the contact of the spermatic fluid of the male with the egg of the female, any means that will prevent this, will prevent conception. For this purpose the French have devised a sack, called a *cundrum*, which is worn by the male, and most effectually prevents the escape of the seminal fluid. The same purpose is accomplished by using a piece of soft sponge, of appropriate size, which is passed up to the womb before connection, and withdrawn afterward, a cord being attached to it for this purpose. It is better that it should be wet in vinegar one part, and water three parts, before using. To

render it more certain, an injection of one part of vinegar to eight of water may be employed. The injection alone, using the rubber pump syringe freely, will often answer the purpose without any other means, employed immediately after the act. These things are some trouble, but are only named for the prevention of a far greater one.

The means above named are the only ones known, though, to read the advertisements in the public prints, it would be supposed that they were very numerous, and easy of use. I describe them, because I believe I will be conferring a lasting benefit on many overburthened mothers, though another class may use them wrongfully. It may seem that such matters should not be spoken of, but my experience tells me that nine out of every ten women, have a great anxiety on this subject, and will be glad to learn what I have written.

ON THE PROCREATION OF MALE AND FEMALE CHILDREN AT WILL.

This subject, novel as it may appear to some, has been for many centuries past, an object of meditation and study; and extensive experiments have been made for a great number of years in several of the European States, to hasten its progress; and foremost among these we find England, France, and Belgium. Those experiments, at first made for the advancement of science only, have, of late years, become objects of speculation, and the knowledge of their results of very great value to the raisers of fine horses and cattle. We could not in so short a paper as this, give the full history of those experiments; a simple glance at the main points, being, we deem it, sufficient to derive the necessary conclusions for the design of our theme. The governments of the States just mentioned, have instituted establishments for the purpose of raising and improving horses, cattle and other animals, and men of science have deduced from close observations, and re-

sults carefully recorded for many years, the following facts :

1st. That the young obtained from a mare, cow or sheep, etc., when very young, was generally a male, when the male employed was of mature age, healthy and strong.

2nd. When the female is of mature age, strong, healthy and well fed, the young is more commonly female when the male employed is young, weak or exhausted by too often repeated copulation.

3d. That the young obtained from the same when at mature age, strong, healthy and well fed, was in nearly equal proportion, when the male employed was in a similar condition.

4th. That the young brought forth, when the female is old, are generally males, when the male employed is young and strong.

5th. That the young obtained from females, when in prime, being well fed and young, were generally females, when the male was not in pride, or when ill fed, or exhausted by frequent copulation, or too old.

6th. That the young obtained from the same, when ill fed and not in pride, were generally males, when the male was well fed, young, healthy, strong and *in full heat*.

7th. That if the female was exhausted by labor, or forced exertion, the young would be generally male, should the male employed be kept in and well fed.

8th. That the young would be female, should the female be kept at rest, and the male exhausted by labor or forced exertion.

9th. To conclude—that the offspring would more generally be male, or female, according to their respective physical and procreative abilities (age being taken into consideration).

From the preceding statements we derive the following deductions: Man being an animal, having physical and procreative faculties, analogous to those of the brutes, if a set of phenomena take place among these, the same must

necessarily be produced in the human species, and if certain conditions of the physical body affect the offspring, the same physical conditions must affect the offspring in man.

To get a male child, the husband should take good substantial, and somewhat stimulating food, moderate exercise, pass his time pleasantly in the gay society of women, read lascivious novels, refrain from sexual pleasures for a time previous to the procreative connection with his wife. During the same time, the wife should live sparingly, particularly on vegetables, fatigue herself every day, take some antiaphrodisiacs, and pass her time in the dry society of old women.

To have female children, the opposite should be observed, the woman should live in the abundance of all good things, in the ball-room, etc., but should restrain her passion and preserve its whole force for the desired time; the male or husband, on the contrary, should reduce his physical abilities by actual labor, and at the same time, reduce his procreative propensities by frequent, copious cold ablutions.—*John E. Van Molle, A. M.*

SIGNS OF PREGNANCY.

It is not always possible for a physician to determine the existence of pregnancy before the fifth month, but there are certain signs which, as a general rule, are reliable. These are divided by writers on obstetrics into rational and sensible, the first being perceptible to the female herself, the second being determined by an examination.

Arrest of Menstruation is one of the most common signs of pregnancy, as in a very large majority of cases the menses cease when conception takes place. It is not certain, however, for this discharge may be arrested by cold, and occasionally from other causes, and in some rare cases it continues for three or four periods after conception

takes place. As a general rule, if the arrest depends upon cold, there will be evidence of disease, as pain in the back and limbs, weight in the pelvis, with sometimes slight fever, all the symptoms recurring monthly.

Morning Sickness is a common symptom of pregnancy, though it does not occur in all cases. It may be but slight nausea in the early part of the day, or it may be so severe as to cause vomiting of the food taken, and in some cases will prove dangerous.

A *dark ring* surrounding the nipples, with enlargement of the follicles, is a pretty certain sign in first pregnancy, but at succeeding times it is of little value. Enlargement of the breasts about the third or fourth month, is an additional evidence.

Discoloration of the face, in the form of freckles, is, in some cases, very good evidence, when taken in connection with the preceding.

Enlargement of the abdomen commences about the fourth month, and is usually regarded by women as indicating pregnancy. Though frequently the case, yet there are numerous instances in which the abdomen is enlarged from other causes, so that it would not be possible, from passing the hand over it, to determine what was the cause. Many an innocent female has suffered from the suspicions of her neighbors and friends, when the enlargement was dependent upon ovarian or other disease.

Quickening usually occurs at the middle of gestation, or about four and a half months, though in some cases it is not perceived before the fifth, or even the sixth month. It is dependent upon the movements of the child in the womb, and is sometimes very marked, at others weak. Women regard it as a positive evidence of pregnancy, and so it is in a large majority of persons; some rare cases have been observed in which the female was positive in her own mind that she felt the movements of a child, but time proved that she was not pregnant. If the hand is dipped in cold water, and applied suddenly over the

womb, it will almost always elicit movements of the child in the later months.

Physicians frequently determine the existence of pregnancy in the latter months of gestation, by applying the ear to the abdomen to hear the beating of the child's heart. Of course it is positive evidence. It is also employed during labor, to determine whether the child is alive, and is a very important measure in some cases.

An examination of the uterus, through the vagina, gives important evidence of pregnancy. Month by month we find that the neck of the womb becomes softer, and its mouth more open, so as to admit the finger. In addition, if the womb be struck by the finger the child will rise up in the water that surrounds it, and, falling, will give a decided impulse to the finger. This is termed *ballotement*, and is a positive evidence of pregnancy.

Taking these as signs of pregnancy, we may conclude that in a large majority of cases, if a woman has arrest of her monthly periods, morning sickness, discoloration around the nipples, enlarged abdomen, and quickening, or a majority of these symptoms, she may safely make up her mind that she is pregnant.

DISEASES OF PREGNANCY.

Pregnancy is a physiological, or healthy condition, and, as a general rule, women enjoy as good health during this period as at other times. It is true, that in some cases morbid sympathies are excited, which prove very unpleasant, and sometimes they can not be avoided.

When pregnancy is suspected, the female should adopt regular habits of living, and even thinking, both for her own good and the good of her offspring. The diet should be nutritious, but not stimulating, and such articles of food as are craved, should be taken in moderate quantities, if not absolutely injurious. The feet should be well protected from dampness, and the entire lower part of the

body from the action of cold. Moderate exercise should be taken, but excessive exertion and fatigue should be avoided. A daily or tri-weekly sponge bath will be of much importance to women of a delicate and lax habit, as it improves the circulation, increases nutrition, and gives tone to the system. Labor will be less painful and shorter, in a majority of cases, if such a course as this is pursued.

A well regulated mind not only adds to a woman's happiness, but is of very great importance to the well being of the child. There is no doubt but that the state of the mother's mind exerts a very strong influence upon the mind of the child. Instances of this are so numerous that any person must have observed it; if the mother's mind is harassed, and she is irritable and fretful, the child will be cross, and the future man or woman will always feel the influence to a greater or less extent. It is true, that in many cases it is almost impossible for a wife to be even-tempered, as she has so much to irritate and annoy her, but perseverance in this, as in other things, will work wonders.

We hear much said about *mothers' marks*; and almost every old lady has her story to tell of some surprising circumstance of this kind. It is no doubt true, that in some cases the influence of the mother's mind is manifested in some physical change in the child. Sufficient evidence is before us to make us admit this fact, and yet when one child is marked from such cause, ten thousand escape. In a very large obstetric practice, not a single instance has come under my observation, though I have been asked the question a hundred times, with fear and trembling, "Is the child all right?" the mother's fears having been excited from some occurrence during pregnancy.

The bowels should be kept regular during gestation, and this is best affected by strict attention to regular periods for their evacuation, only resorting to mild laxa-

tives, as a seidlitz powder or the citrate of magnesia, when it was absolutely necessary.

Morning Sickness or Vomiting, when mild, requires but little attention, as it usually passes off by the fourth or fifth month. Frequently a cup of strong coffee taken before, or shortly after getting up, will answer a good purpose; or an infusion of peach-tree bark, in doses of a teaspoonful every half hour during the forenoon, will answer a good purpose, as will an infusion of spearmint taken cold. An infusion of the neutralizing physic, in doses of half a teaspoonful frequently repeated, answers a good purpose. The *Life drops* in doses of ten drops in water may be used, or we may add creosote, ten drops, to sugar one drachm, and water four ounces, and give a teaspoonful every two hours. A flannel bandage wrung out of cold vinegar, and applied around the waist, with a dry one over it, is the best external application.

A disordered appetite is a frequent attendant upon pregnancy, but may generally be corrected by care and regular habits. If the appetite is impaired, the Collinsonia Bitters recommended in the preceding volume may be used. If the breath is bad, with a foul tongue, use a solution of acetate of potash, half an ounce to four ounces of water, in doses of a teaspoonful four times a day. An unnatural longing for crude and indigestible articles of food can always be controlled by judicious regard to variety in the diet. It is the popular impression that these *longings* should be gratified, for fear of an injurious influence upon the child, but this impression is rapidly giving way, and we rarely find a case of old fashioned longing, which sometimes extended to a silk dress or a new carpet, as well as articles of food.

Heartburn is a very unpleasant symptom that occasionally attends pregnancy, and is sometimes very persistent. Frequently more care in the selection or change of diet is all that is necessary. At other times, an infusion of peach-tree bark will prove valuable; and again an infu-

sion of the Neutralizing Physic may be employed. It is best to avoid the use of alkalies if possible.

Headache sometimes proves very distressing; recurring from day to day, and being so severe as almost to drive the woman crazy. In some cases it depends upon torpor of the bowels, and a mild cathartic, and subsequent attention to keep the bowels regular, will cure it. At other times, a solution of acetate of potash as above recommended will speedily relieve the patient from suffering. If very persistent, a physician should be consulted.

Toothache occurs so frequently in pregnancy, that by some it has been considered a valuable evidence of that condition. As there is some danger of miscarriage from having a tooth pulled, it is best to check the pain by other means if possible: the remedies recommended in Vol. 1 will frequently be found sufficient. If they fail, and the pain is severe and persistent, have the tooth removed.

Unpleasant sensations in the pelvis are of frequent occurrence in the earlier months of pregnancy; as of weight, bearing down, frequent desire to pass water or evacuate the bowels, burning on passing water, etc. These will usually pass away by the fourth or fifth month, and unless severe, do not require medicine. Attention should be especially paid to keeping the bowels regular, which will obviate much of the difficulty. When I prescribe for these affections, unless there is some decided disease, it is tincture of staphysagria, one drachm; water, four ounces: a teaspoonful every four hours.

In the latter months of gestation, there is sometimes a very unpleasant sensation of weight and feeling as if the lower parts would give way, which depends upon the weight of the womb, and loss of power in the muscles of the abdomen. In these cases, have a bandage nicely adjusted to the lower part of the body, draw it comfortably tight, and suspend it from the shoulders with a pair of men's elastic suspenders: it will in many cases

relieve all the trouble, and the person will feel an agreeable sense of lightness and comfort.

Under no circumstances should the skirts be suspended from the hips, as is frequently the case. The pressure thus made causes the womb to sink lower in the pelvis, and many times gives rise to the unpleasant sensations above named. Let all the clothing be loose, especially such as fasten around the waist, and suspend the skirts by straps from the shoulders.

Corsets and tight lacing are always objectionable, but here it should be entirely avoided from the very first. Why any sane person should wish to bandage the chest, and prevent free inspiration, is more than I can account for, as it would be to me a continued night-mare. If women will wear them at other times, let them be dispensed with during pregnancy, if they value their own health, or care for the well being of the child.

Distension and pain in the breasts is sometimes very annoying, especially in first pregnancies. In these cases keep the clothing loose, and bathe the breasts with one part of tincture of arnica to three parts of water, or if this can not be obtained, use spirits of camphor and water in the same proportion.

A *distressing itching* of the vulva sometimes occurs during pregnancy, and is very annoying. It may usually be relieved by a wash of morphia, five grains; borax, one drachm; water, eight ounces. Or, take half a pound of tar, and pour on it one quart of water; stir it, and let it stand for two days, when the water may be used as a wash.

Cramps of the lower extremities are sometimes annoying, and in some cases very severe and persistent. They depend upon the pressure of the enlarged womb, sometimes upon constipation. They are relieved by keeping the bowels regular, and by supporting the womb as heretofore named.

Swelling of the feet and limbs sometimes occurs, and re-

sults frequently from the same cause, though at others from the causes that generally give rise to dropsy. The woman should be on her feet as little as possible, keep the bowels regular, and the womb supported. If this is not sufficient, a physician had better be consulted.

Displacements of the womb during pregnancy are not of frequent occurrence, but when they do happen, give rise to serious symptoms. Previous to the third month the womb sinks lower in the pelvic cavity than usual, and sometimes gives rise to unpleasant symptoms. The sufferer may rest assured, however, that by the fourth month, this will cease. When the falling of the womb is bad, and in cases of *retroversion* and *anteversion*, a physician must be consulted. The last two occur suddenly, and should never be neglected.

ABORTION.

As before remarked, the child does not become capable of an independent existence before the seventh month, and if labor comes on and it is discharged before this time, it is called an *abortion*. If labor comes on between the seventh and the end of the ninth month, it is called a *miscarriage*, or premature delivery.

Abortion may be *spontaneous*, *accidental*, or *designed*. In the first case it is dependent upon some disease, or weakness of the generative organs, or of the entire system; and many times there is such tendency to abortion, that it is very difficult for the female to carry the child to its full time. The accidental causes are falls, blows, over-exertion, lifting heavy weights, and great mental excitement, as fear, joy, grief, etc. Drastic cathartics will sometimes cause it, as will emetics, or the extraction of a tooth, or any thing that gives a severe shock to the system, or causes great pain. Abortion is sometimes produced by criminal means, either medicinal or instrumental, and the woman placed in great danger.

The *symptoms* of an abortion are, usually, first, a feeling of debility and sinking, and a bloody discharge from the vagina. There is pain or aching in the back, sometimes pains in the limbs, and a feeling of weight in the pelvis. The discharge of blood continuing to increase, labor pains come on, at first slowly and weak, but growing stronger and more frequent, until the child and afterbirth are expelled. In some cases an abortion proceeds with great rapidity, one or two hours being sufficient, but in other cases the pain and hemorrhage continue for twelve, twenty-four, or more hours, before the contents of the womb are expelled.

Up to the third, and sometimes as late as the fourth or fifth month, the ovum is expelled entire; that is, the membranes are not ruptured, and the child, afterbirth and bag of waters come together without being broken. After this time, the pains continuing for a time, the bag of waters break, and this fluid is discharged, then the child is expelled, and, finally, after considerable time, the afterbirth passes. Frequently the discharge of blood is profuse, especially after the expulsion of the child, and before the passage of the afterbirth, in some cases proving fatal in a very short time.

MANAGEMENT OF AN ABORTION.—As soon as a woman feels the first symptoms above described, she should immediately lie down and keep perfectly quiet. Have some friend prepare a good sized mustard plaster, and apply to the small of the back, and take internally half a teaspoonful of paregoric, or from five to ten grains of diaphoretic powder, No. 20. In many cases this will be sufficient to arrest it, when the female should keep in bed for at least one day, and for several days should be very cautious to avoid over-exertion or active exercise.

If the pains and discharge of blood continue to increase after the treatment named, it should be discontinued, as an abortion will result. In most cases a physician or competent midwife will be sent for. Let the woman keep quiet, and if there is much hemorrhage or flooding, give

the essence of cinnamon in teaspoonful doses as often as seems to be necessary, every few minutes, if required; or if this can not be obtained, equal parts of nutmeg and alum, about as much as would lie on a ten cent piece, will answer a good purpose, or the nutmeg may be used alone, if the alum can not be procured. If the discharge should still continue, apply cloths wrung out of cold water to the lower part of the bowels and vulva.

When the pains become severe, let the attendant make an examination by passing the fore-finger up to the womb. If the waters have not been discharged, be very careful not to rupture the membranes; if they have, the child may be found entirely or partly within the vagina, when the finger may be hooked around it, and it thus withdrawn.

The greatest danger is from retention of the afterbirth. If there is but little flooding, there is nothing to be done. If, however, the discharge of blood is profuse, pass the finger to the mouth of the womb, as it may be detached and situate so that the finger can be hooked over it, and thus withdrawn. Give the remedies for hemorrhage that are named above, and use the cold applications. If it is dangerous, and these means fail of arresting it, and the woman has not passed the fifth month, plug the vagina with a silk handkerchief, or any soft material, put a bandage around the abdomen, with a compress over the womb, and get a physician as soon as possible.

Never be alarmed at these times, as alarm increases the patient's danger. Act coolly and deliberately, as there is very rarely any danger if the above directions are strictly followed.

In cases of habitual abortion, always consult some competent physician.

PRODUCING ABORTION.—Many women, who otherwise act from conscientious motives, have very lax ideas upon the subject of abortion. Even Christian women seem to have but slight regard for the destruction of the life of

the unborn child, and not unfrequently apply to the physician for means to cause its death and expulsion, as they would for a medicine to relieve pain. The laws of God and man make abortion criminal; it is murder at any period of pregnancy, and nothing else can be made out of it. The life of the unborn child is as precious as it would be if one year old, and its destruction involves the same guilt. Any man or woman who intentionally produces abortion, is guilty of a high crime, punishable in any of the United States with imprisonment in the penitentiary.

Most women suppose that there are medicines which will produce abortion, in the same manner that a dose of castor oil will cause evacuation of the bowels, and if the physician would but tell them what it was, they need never have a child if they did not wish it. This is a very great mistake, as there are but very few medicines that will accomplish it in any case, and none in a majority of women. The agents are all harsh and drastic, and endanger the female's life before a single pain is induced.

Physicians induce abortion, only when for some cause it is impossible for the female to bear a living child, or her life is endangered by some disease that is dependant upon pregnancy. So careful are they, that even in these cases, they always have a consultation if it can be obtained. In such cases instrumental interference is employed, and internal medicines are never used.

LABOR.

Gestation, or pregnancy, continues for ten lunar months, or nine calendar months and a week, being about two hundred and eighty days. It may vary from this six, twelve, or more days, anticipating the time by this much, or extending over it even to three hundred days. Females count their time from the last menstruation, or monthly sickness, and expect labor at its tenth recur-

rence, and in which they are very rarely disappointed. It has been remarked in many cases that gestation is shorter with females than with males, hence when a woman runs over her time, she anticipates having a boy.

Labor, or parturition, is that process by which the child and the afterbirth are expelled from the womb. This expulsion is caused by the contraction of the muscular coat of the uterus, which is now highly developed and powerful, aided by the action of the abdominal muscles. The contraction of the uterine muscles is painful, hence *labor pains* is synonymous with uterine contraction, and the child is said to be expelled by *the pains*.

Labor pains vary greatly in character, frequency, duration, and intensity. At first they are grinding or cutting, are not frequent, continue but a short time, and though very annoying, they are not hard. As labor progresses they become more frequent, continue longer, are harder, and in the last stage, recur every few minutes, or oftener, and are very severe and expulsive.

STAGES OF LABOR.—Labor is divided into three *stages*. The first is the period from the commencement of pain to the full dilation of the neck of the womb, and discharge of the waters. It occupies a variable period of time, sometimes but a few hours, at others, two, three, or four days. Though it may continue long, and the pains prove very annoying, yet, as a general rule, the patient is in no danger before the discharge of the waters. The second stage is the period between the dilation of the mouth of the womb and the complete expulsion of the child, and though of variable duration, is on the average, from two to four hours. The third stage is the period between the birth of the child and the expulsion of the afterbirth.

SYMPTOMS OF LABOR.—A few days previous to the commencement of labor, the womb sinks down in the abdomen, the presenting part of the child entering the pelvis. The respiratory and digestive organs are thus freed from pressure, and the female feels lighter and more cheerful

and comfortable than she has for weeks. So marked is this, that she is not unfrequently tempted to assist, or do that she would not have thought of a short time before. In addition to this, there is a whitish discharge a short time before labor commences, or at its commencement; this is termed the *show*.

The first stage of labor commences with occasional pains, commencing in the back and passing round the womb to the front, and down to the groins. They are described by the woman as *cutting* or *grinding*, and she sometimes suffers as much from them as from the more severe pains of the second stage. As time passes, the pains become more severe, last longer, and recur more frequently.

If the index finger is now introduced into the vagina to the womb, its mouth will be found to dilate or grow larger as the pains progress, and a smooth, round, fluctuating mass fills the opening: this is the bag of waters. When the pain is on, this will be found pressed down and tense, but when the pain is off, it will be relaxed and flabby. In the absence of pain, if the finger is pressed up through the mouth of the womb, the hard, round head of the child may be felt.

After a variable time, usually from eight to sixteen hours, the pains having become as frequent as every five minutes, and quite hard, the mouth of the womb will be found dilated, and the head of the child passing through it, and the membranes rupture, and the waters are discharged. This terminates the first stage of labor.

With the commencement of the *second stage* the pains change their character and become *bearing down*. As time passes they become more frequent and severe, and the female wishes something to press her feet against, and to pull on with her hands in order to aid the pains. She does not complain much more than in the preceding stage, except when a very hard pain occurs she is forced to cry out. These pains gradually force the head of the child downward in the pelvic cavity, and at length it may be

felt at the outlet, pressing on the soft parts. The pains now become more severe, and at each one the head is forced against the soft structures, pressing them out, but when the pain passes off the head recedes. At length one or more powerful and long-continued pains occur, eliciting a cry of anguish from the mother, and the head is forced through the vulva. The next pain is usually sufficient to expel the body of the child, and the second stage of labor is completed.

After the expulsion of the child, a variable period, of from ten to thirty minutes, elapses in which there is no pain. Pains then come on, and usually, with but two or three, the afterbirth is forced from the womb into the vagina, from whence it is discharged by the bearing down efforts of the female, assisted by the attendant. In some cases its expulsion immediately follows the child, and in others its separation is slow and difficult, occupying several hours, unless facilitated by the skillful physician or midwife. This terminates the third and last stage of labor.

During the first stage, there is increased secretion from all the soft parts, and they are observed to gradually relax and become soft. In the second stage, these secretions are increased, and the parts are so bathed and lubricated as greatly to facilitate the passage of the child. With the expulsion of the child there is always a greater or less discharge of blood, which usually increases while the placenta or afterbirth is being detached, and afterward continues under the name of *lochia*, or *the discharge*. In some cases the mother will feel quite chilly after the completion of the labor, though this soon passes off by increasing the cover.

MECHANISM OF NATURAL LABOR.

A *natural labor* is one in which the *vertex*, or upper portion of the head presents to the inlet of the pelvis, and in which the labor progresses favorably, and is completed

within a reasonable period of time. Three other varieties of labor are described, *preternatural*, *difficult*, and *complicated*. In the first, some other part of the child but the head, presents, and in the second the labor is greatly protracted, and in the third it is complicated by some occurrence that renders it dangerous, as hemorrhage, etc.

The natural position of the child in the womb, is a state of flexion—the chin on the breast, the arms to the sides, the thighs flexed on the abdomen, and the legs on the thighs. In this position it forms an ovoid body, the vertex, or upper part of the head, being the most dependent part. The child's head is much the largest part of its body, so that where it will pass, the body will pass easily. If we examine the head of a child, we will find its least diameter to be transverse, from ear to ear, and the next shortest is its opposite, from the neck to the upper portion of the forehead, as marked by the line from

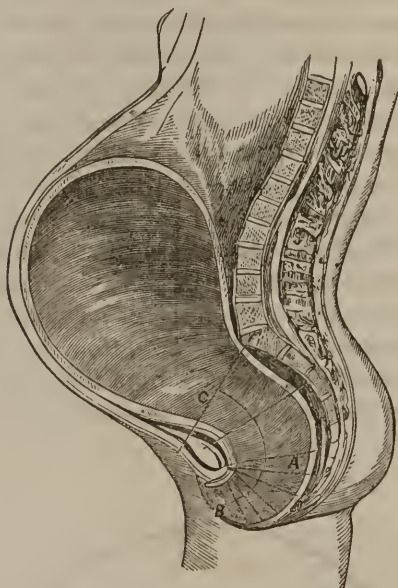
FIG. 10.

*Head of the Child.*

3 to 4, in Fig. 10. These diameters, which give the exact size of the head as it passes through the pelvis, measure three and three-fourths inches. The child's head then presents the part marked by 2, and the long diameter of the head, from 1 to 2, is in the line of its body. If the head was not flexed, this would present to the pelvis, and,

being five and one-half inches in length, of course the labor would be arrested.

FIG. 11.



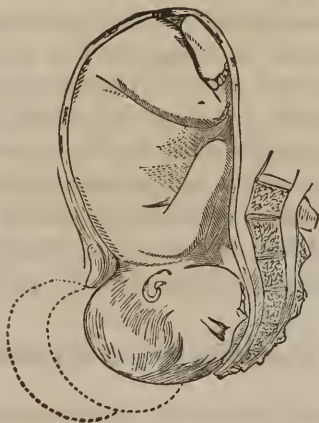
Cavity of the Uterus and Vagina at the period of Labor.

Fig. 11 represents a section of the female body, with the cavity of the uterus, and the parturient canal dilated to its full extent. It will be seen from this that the uterus, acting upon the child, will force its head directly downward to A, when it will be resisted by the sacrum. To make further progress, it will be thrown forward in the direction of the curved line from C to B.

As the vertex goes first, and is thus thrown forward under the pubic arch, the chin will leave the breast, as seen in Fig. 12. As it continues its passage, it will be thrown still further forward, as marked by the dotted lines in the same cut, Fig. 12. No matter what the position of the head may be, and obstetricians recognize four,

the occiput, or back part of the head, will be brought to the pubic arch in a large majority of cases. By referring to the cut of the child's head, and comparing it with Fig. 12, it will be seen that this must be so, for some part of the head must escape from the pelvis, in order to permit of this flexion, which brings the long diameter of the head to correspond with the pelvis.

FIG. 12.

*Positions of the Head during Labor.*

The child's head having thus passed through the bony canal, the body is expelled in the same line, and being smaller and more flexible, this is accomplished without difficulty.

The position of the child's head is determined by the openings in it. If the head of a newly born child be examined, a large square opening will be found in the bones at the anterior part of the head; this is called the *anterior fontanelle*. Passing backward from this, in the center of the head, the line of junction between the two *parietal* bones can be readily felt, and is called the *sagittal suture*. At the posterior extremity of this, is another

small triangular opening, called the *posterior fontanelle*. Passing from this laterally, are two sutures, marking the articulation of the *occipital* with the two parietal bones.

If, now, in making an examination, the finger comes in contact with the small triangular opening, we are certain that the vertex presents. In some cases this opening is closed, but even in these cases the three lines of sutures coming together are readily felt, and the occipital bone is pressed under the edges of the parietal during a pain, and thus becomes very prominent. The direction of the sagittal suture gives us the position of the head in the pelvis.

It is not necessary to recognize but two positions, an occipito-anterior, and an occipito-posterior. In the first case, the triangular opening will be to the front, and either the left or right side; in the second, it will be in the posterior part of the pelvis, and to the right or left. Labor is more difficult in occipito-posterior presentations, because the head has to rotate the entire distance from the posterior to the anterior part of the pelvis.

MANAGEMENT OF LABOR.

The mother will have every thing prepared and put in its proper place preparatory to her confinement, leaving nothing undone that may be required at such time. The binder, or bandage, may be fitted to the body and laced, but I prefer a single thickness of drilling or stout muslin, about eight or ten inches wide, and hemmed. Some put whalebone in it, to prevent its wrinkling up. Cloths should be prepared to receive the discharges, and two or three old quilts or comforts to protect the bed. For the child, in addition to its proper clothing, two pieces of stout string, about the size of dress cord, should be made, to tie the *umbilical cord*, or navel string, and a piece of soft linen to dress it. Lard, soap, water and towels should be placed where they can be readily procured.

When the pains come on so as to show that labor has

commenced, have the quilts spread on the bed, so that the one next the female may be readily withdrawn after the birth of the child to remove the discharges, and thus leave the person dry and comfortable. It is not necessary that she should go to bed as yet, but the physician may be sent for. If none is to be in attendance, have the female lie down, and make an examination to determine how much the mouth of the womb is open, and, in the absence of pain, whether the evenly rounded, hard head of the child presents. If it does, there is no danger, but the child will be born in due time, and without assistance.

It is best for the lady to walk about the room, as it renders the time less irksome, and is thought to increase the pain. When the pains become frequent and attended with a desire to lie down, let her remove her clothing and go to bed. It is best to have her under clothing drawn up, so as to protect them from the discharges, which obviates changing the clothing after delivery. Now let a stout box be placed at the foot of the bed for her to rest her feet against, and attach a sheet to the footboard, for her to pull with her hands. In this way she is able to assist herself and obtain the greatest advantage from bearing down.

When the waters break, we know that the termination of labor is not far distant. Physicians now make an examination to determine the presentation and position. Now the head of the child may be plainly felt, and the mother's anxiety quieted by assuring her that *everything is right*. As the pains become more and more severe, she should be encouraged to keep up her spirits, and not draw back from the pains, but to bear down and assist them. Especially should she keep in one position, the one I prefer being on the back, with the knees drawn up and separated.

When the head commences to distend the soft parts, place one hand under the vulva, and gently support them, making pressure forward. As the child's head distends

the opening, carry the hand forward with it, and when it is born it will be received on the hand. Now pass one finger up the neck of the child to ascertain whether the cord is wrapped around it, and if too tight, draw it down so as to loosen it. Also, pass a finger into the child's mouth to remove any phlegm. When the next pain comes on, the body will pass with considerable rapidity, and the child should be carried outward as it passes, with both hands. When born, lay it within the mother's thighs, at the length of the cord. Now wipe your hands, see that the child is breathing freely, and proceed to tie and cut the cord. Take a piece of stout string and tie it very firmly, two inches from the body of the child, then a second piece and tie it an inch or two outward from the first, and divide the cord between them with a pair of scissors.

Let the child be wrapped in some old woollen material, and lay it at the foot of the bed, as the mother needs further attention. Place your hand on the lower portion of her abdomen, and if you feel a hard roundness, the size of a child's head, you may be satisfied that the womb has contracted. If not, gently knead it in various directions until the womb does contract into a hard mass. If it is quite small, not larger than the child's head just born, the afterbirth will be found partly or wholly within the vagina; if large, it is probably yet retained. In such case, in fifteen or twenty minutes, make pressure on the uterine globe, and slight traction on the cord with the other hand, telling the mother to bear down at the same time. If it passes into the vagina, let the mother bear down hard, and withdraw it by pulling upon the cord, twisting it three or four times round, so as to remove the membranes. Always examine the afterbirth, to see whether it is smooth and round, or if any portion has been left, as an intelligent account of this will sometimes prove a valuable guide to the physician if any unpleasant symptoms should arise.

The afterbirth having passed, apply a folded cloth to the vulva, to receive the discharges, and withdraw the uppermost quilt in order to remove the blood and discharges. Now apply the bandage, pinning it evenly and comfortably tight, and if the mother is thin in flesh, it is well to use a compress over the womb.

The child is now to be attended to, washed and dressed. Have a basin of warm water, lard, soap, soft towels, pins, and its clothes placed in easy reach. Then, with the lard thoroughly grease the child from head to foot, wiping it off before washing with a soft flannel or cotton cloth, to remove the greasy secretion that covers the skin. Now wash it thoroughly with soap and water, paying especial attention to the folds of the arms, groins, neck and legs, that the skin is perfectly clean. Have a piece of soft linen, about six inches square, and fold it with the corners, and with the scissors cut the point off so as to have a central opening to pass the naval cord through, grease it, and apply, the cord passing through the hole in the centre. Lay the cord upward and to the left side, and fold the linen cloth over it, and apply the bandage. This had better be of cotton in the summer, and woolen in the winter, and should be pinned evenly and not too tight.

The child having been dressed, should be put to the breast, in order that its nursing may cause the womb to contract firmly. Many nurses wish to give it something to take the phlegm out of its throat and move its bowels, as urine and molasses, whisky and molasses, castor oil, etc. The child does not need anything, and the nurse should not be allowed to dose it under any circumstances.

The milk first drawn from the breast possesses laxative properties, and its bowels will move in the first thirty-six hours, passing off the *meconium*. If it does not pass its water apply hot cloths to the lower part of the bowels.

The child should be washed and dressed daily, using care to prevent excoriation of the tender skin, and it should not be allowed to remain wet for any length of

time, as this sometimes produces irritation. From the sixth to the tenth day the navel cord separates, and the navel should then be covered with a soft cloth spread with mutton tallow. If it remains sore for some time, it may be dressed with the elder ointment, No. 86. If its neck becomes sore, or behind its ears, the same application will speedily heal it.

The mother should be kept very quiet in bed for the first three or four days, and not allowed to raise up in the bed herself. Her diet should be light, as toast and tea, crackers, light soups, potatoes, coffee, etc. After the third day she may be allowed meats, and gradually return to her usual course of living. She should not get out of bed before the fifth day, and then only to have her bed made; after this she may sit up a short time each day, until she is able to be up constantly, about the ninth to the twelfth day. The cloths applied to the vulva should be frequently changed, and the parts sponged daily with warm water and castile soap. If there is great soreness, they may be bathed with one part of tincture of arnica to four of water.

By the second or third day, the milk comes freely, and now the mother will have some fever, with headache. As the bowels have not moved up to this time, it is well enough to give a mild laxative, which will also remove the fever. Castor-oil will answer, or a seidlitz powder may be taken, or a dose of the compound powder of jalap No. 7.

The *lochia* is the discharge from the vagina, which continues from eight to fifteen days after the birth of the child. At first it is pure blood, but in three or four days it becomes light colored, and by the ninth day is colorless. The nurse, or mother, should notice the amount of this discharge, and especially any arrest of it. If it becomes scanty, the mother will be feverish and feel bad, with pains in various parts of the body, and soreness in the region of the womb. To bring the discharge back, or

increase it, when deficient, make a strong pennyroyal tea, and let her drink it freely; it is the best remedy known for this purpose. If the discharge should be profuse and weakening, give essence of cinnamon in doses of half a teaspoonful every hour or two.

Sometimes the breasts become painful, from too great distention with milk. In this case let them be bathed with an ointment composed of camphor, half an ounce; tincture of arnica, one ounce; lard, two ounces. In some cases it is best to use it warm. The breasts should also be kept well drawn out, either by the child, or some other person, or with a breast pump; or, what is an excellent plan, by a young pup, which should be kept for the purpose until the necessity is over.

Occasionally the young mother's nipples are so small that the child can not get hold of them, much to its disgust and annoyance of the mother. A breast pump will frequently draw them out sufficiently; or take a pint bottle and fill it with warm water, when as hot as the breast will bear it, pour the water out and immediately apply above the nipple.

Very frequently the nipple becomes chapped and fissured, and exceedingly tender and sore. The child's nursing is very painful, and frequently causes the mother to cry out, and brings tears into her eyes. They are difficult to cure, as the continued nursing of the child keeps them irritated. In some cases it is best to get a nipple shield from the nearest drug store, for the child to nurse through, and thus protect the nipples. If it refuses to nurse through it, as is sometimes the case, fill the shield with warm milk before it is applied, which will usually cause the child to take hold. The elder ointment, No. 86, or the Mayer's ointment, No. 85, will be as good applications as can be made, to heal the nipple up.

Sometimes the child refuses to nurse, and cries and kicks when put to the breast. Some care will be necessary to overcome this. Always put it to the breast when

it is in a good humor, and let the mother be in proper position to give it the breast before it is disturbed. In this way it can be got to take hold and nurse. Under no circumstances must it be fed, as it may thus refuse to nurse at all, but starve it until it does take hold.

AFTER-PAINS.—With the second or third child, the mother has more or less pain after delivery, which are termed after-pains, and are more and more severe each succeeding pregnancy. They are similar to the pains of labor, lasting for two or three minutes, and then passing entirely off, to recur in fifteen minutes or half an hour. In some cases they are very severe and annoying, so that the mother will say that she would rather suffer from the pains of labor. In the milder cases they continue for one or two days, but when severe they rarely last less than three or four days. They are usually increased when the child takes the breast. These pains are necessary to the well being of the mother, and should never be entirely arrested, but in most cases they may be so modified as to give the necessary rest and prevent undue suffering. I generally give the diaphoretic powder, No. 20, in doses of five grains, but if this can not be obtained, twenty drops of paregoric may be used in its stead. The dose may be repeated as often as it is necessary until the pains are mitigated, but should not be continued to stop them.

DIFFICULT LABOR.

A labor may be difficult or lingering, and yet terminate unaided with perfect safety to both mother and child. Labor is a physiological function, and the female body is adapted to meet nearly any circumstance that may present in its progress. Thus we may say, that in every hundred labors, nature will be sufficient to accomplish the delivery of the child in ninety-nine, the other case requiring artificial assistance.

As we have already seen, the first stage of labor may

be very greatly protracted without danger to the female, if the membranes are not ruptured. It is very annoying, however, and frequently exhausting, and when possible and prudent, means may be used to facilitate its progress.

INEFFICIENCY OF THE PAINS.—In many cases the labor progresses slowly, because the pains are irregular or weak, or come on slowly. In these cases a great amount of patience must be exercised, and the woman encouraged by the certain assurance, that after awhile the pains will become right. In many cases, if she walks about the room in the absence of pain, they will be much increased. In others a cup of warm ginger tea may be taken with advantage. Nothing more than this is advisable until a physician is called.

RIGIDITY OF THE OS.—Rigidity of the *os uteri*, or mouth of the womb, is occasionally a cause of difficult labor. In these cases the pains are hard, and sufficiently frequent, but the labor makes no progress. If the finger is introduced to the mouth of the womb, it will be found hard and rigid, and it dilates very slowly as the pains continue. In this case we find lobelia to be the most efficient remedy. We employ the tincture in doses of half a teaspoonful every fifteen minutes until it produces nausea, when the mouth of the womb will become soft and yield to the pains.

TOUGHNESS OF THE MEMBRANES.—The membranes containing the waters are sometimes so tough and unyielding as to resist the progress of the child. In this case they will be pressed down to near the outlet, and will be felt to be tough and tense during a pain, and do not advance. In such case we scratch or pinch a hole through them with the fingers, and permit the waters to escape, when the labor will again proceed.

RIGIDITY OF THE SOFT PARTS.—Rigidity of the vagina and soft parts closing the outlet of the pelvis, is sometimes the cause of slowness. We may rest assured of one thing in these cases, and that is, that nature is competent to effect

their dilation without assistance, as cases are on record, where the child passed through the vagina, that, previous to labor, would scarcely admit the finger.

DISTENSION OF THE BLADDER.—This sometimes obstructs the passage of the child and protracts the labor, especially if the bladder is carried down before the head. In all cases it should be borne in mind to keep the bladder free from urine, by frequently passing it as the labor proceeds. When the bladder is carried down before the presenting part of the child, the female will be unable to pass her water, and a physician should be obtained as speedily as possible, as it will have to be drawn off with a *catheter*.

CONSTIPATION.—The rectum is sometimes so filled with *fæces* that it offers an obstruction to the passage of the child. This may be determined on examination, by the projection and hardness at the posterior part of the vagina. It should be a rule that the bowels must be moved before labor comes on. Therefore, if a woman's bowels are constive, let her take a good dose of castor oil when the pains first commence, or instead of this, use an injection to induce a passage. During labor, if this is thought to be a cause of difficulty, let large injections of warm water be used until an operation is obtained.

SMALL PELVIS.—Disproportion between the head of the child and the mother's pelvis is a not unfrequent cause of protracted labor. This may arise from a natural smallness of the pelvis, from some deformity of it, or from the child having a very large head. In these cases the labor is very tedious, protracted and painful, but even here nature makes the necessary provision in many cases. As the pains act upon the child, its head is gradually elongated, and forced into the shape of a wedge, and finally it is thus adapted to the size and shape of the pelvis. The mother and nurse are frequently surprised and alarmed at the unnatural shape of the head, but they can be assured that in a few days it will assume its natural condition.

Patience is a great virtue in these cases, and time often

works wonders. If the head of the child advances, no matter how slowly, and the soft parts kept cool and moist, there is no danger. On the contrary, if the female becomes feverish or exhausted, the soft parts being hot and dry, interference is demanded, and a competent physician should be in attendance.

The means made use of in these, and other cases of difficult labor, are the use of the forceps, or perforating the child's head. The forceps are two blades of steel, jointed together, and act like a pair of hands applied to the side of the child's head. They are used instead of the hands, because there is not space enough for them. In the hands of the careful physician, their employment is not attended with danger, and very frequently the labor is speedily and successfully terminated by their use. In the most difficult cases, when no other means avail, the head of the child is perforated with instruments, the brain broken down and removed, and the child is easily extracted. Neither the forceps, nor these instruments, are used if they can be avoided, and are only resorted to, to save the life of the child or the mother.

Labor is more difficult in face presentations, than when the vertex presents. The pains are usually more severe and distressing and the child passes slowly. Patience is all that is requisite, however, as nature is sufficient for the delivery. We determine a face presentation by feeling the eyes, nose, mouth, chin and forehead. In these cases some swelling and deformity of the countenance may be expected, and the mother should be so informed before the child is born.

If the *forehead* or an ear presents, the labor will be still more difficult, though in these cases nature will frequently rectify the mal-position. A skillful physician will soon overcome the difficulty, and the labor will progress as in a natural case.

PRETERNATURAL LABOR.

A preternatural labor is one in which some other part of the child than the head presents, when there is more than one child, and in cases of monstrosity. Next to the head, the breech presents most frequently, and the side or shoulder of the child, least frequently.

BREECH PRESENTATION.—A *breech or foot* presentation may be determined by the softness of the presenting part, and the depression between the legs and the genital organs. Labor is not always more difficult in these cases than in natural labor, and in but very few is there much difficulty in the birth of the child. The breech is observed to pass downward under the influence of the pains, in the same manner as the head. The mouth of the womb dilates, the bag of waters is formed and ruptured, and finally the breech appears at the vulva. As the labor continues the body is forced down, and finally the head, the largest and most difficult portion, is passed from the vagina.

The management of a case of this kind does not differ much from a case of natural labor. Nature accomplishes the work in a regular and orderly manner. The perineum should be supported as before, when the child is passing, and as soon as the lower part of the body is born, the hands should be drawn down. In all cases the back part of the head of the child must come to the front of the pelvis, and if this is not being done, grasp the body of the child with the hands, and gradually effect the desired rotation as it passes down. The most difficult part of the labor is the passage of the head of the child from the vagina, as it is now outside of the womb and can not be acted on by it. In such case we elevate the body of the child gradually, and tell the mother to bear down strongly. If this is not sufficient, two or three fingers are introduced under the head and passed into the mouth. Now, the body of the child being raised, it can be drawn upon, and force exerted on the mouth sufficient to extract the head.

In these cases, and even in natural labor, the child may seem still-born, it does not breathe, and the heart acts very feebly, or not at all. Have some cold water immediately brought to the bedside, and sprinkle it with considerable force upon the face and breast. At the same time let the child be turned slowly from its back to its breast, to induce respiration, or let the plan be adopted that we named for the apparently dead, in volume 1. In some cases the lungs may be inflated by applying your mouth to the child's, being careful not to produce too much pressure. In others it will be of advantage to give the child a warm bath. The umbilical cord should not be cut for some time in these cases, especially if there is the slightest pulsation. Care and perseverance will sometimes accomplish wonders in such cases.

SHOULDER PRESENTATION.—A shoulder or side presentation is one of the most difficult and dangerous cases of labor. It is impossible that the child should be born by the unaided powers of the system, unless it is a premature birth, and the pelvis is very large. The early attention of a skillful physician will, in this case, save the life of both mother and child.

The symptoms of the first stage of labor do not differ in any respect from natural labor, further than the womb dilates slowly, and the bag of waters is elongated in place of globular, and sometimes the arm or hand can be felt in it. When the waters are discharged, the shoulder is pressed down into the pelvis, and is the only part that can be felt. If the child is not turned, the pains are very severe, but inefficient, the female's strength becomes exhausted, hemorrhage sets in, and, becoming profuse, she dies.

Such cases should be recognized before the waters break, if possible, and when this occurs the child should be turned. To the dexterous physician the child is turned at this time as easy as the operation is described. The hand is introduced into the womb, a foot found and

grasped, and drawn down to the mouth of the womb. The presentation is thus changed from a shoulder to a breech, and the labor proceeds without difficulty. Where the waters have been discharged for a considerable time, and the pains are strong and frequent, turning is accomplished with great difficulty, and in some cases can not be done. Hence it would become necessary to make an opening into the side of the child, to permit its expulsion.

TWINS AND TRIPLETS.—In cases of twins, the labor is not unfrequently as easy and speedy as if there was but one child, though in most cases it is slower. One child usually presents by the head, the other by the breech, though this is not always the case. These labors should be managed as heretofore described. When one child is born, tie and cut the cord and remove it, and wait for the expulsion of the second and third, which are treated in the same manner. The afterbirths will usually be separate, and will not generally pass until the birth of the last child.

MONSTERS.—In some cases the foetus is abnormally developed, and in this case is termed a *monstrosity*. Some have two heads, others part of two bodies, and some seem to be two children joined together.

We can hardly ever determine what the nature of the difficulty is, but we may feel that the natural powers of the system are sufficient in a majority of cases to effect the delivery. The Siamese twins, and hundreds of other cases as difficult, have occurred, and the mother safely recovered. In one case of this kind the labor was very severe and protracted, and the physician found it impossible to determine the reasons for it. In time, however, one head made its appearance at the vulva and was born; then the second head came down and passed through the pelvis, and finally the body was born. Though the mother suffered severely during the protracted labor, yet she got up well, and is still living.

COMPLICATED LABOR.

Labor may be complicated with disease, or accidental occurrences, that will render it dangerous to the mother. These cases demand great care and skill in their management, and should always be entrusted to the physician. If from any cause, trouble is anticipated, obtain the services of the most skillful physician in this branch that can be had, and have him in attendance at an early period of the labor.

Of these complications, *hemorrhage*, or flooding, is of most frequent occurrence, and is usually regarded as most alarming. It may occur previous to, and during the first stage of labor, after the expulsion of the child, and after the birth of the placenta.

UNAVOIDABLE HEMORRHAGE.—The severest form of hemorrhage arises from the attachment of the afterbirth over the mouth of the womb, so that when the os is dilated, the afterbirth is more or less detached, and blood is discharged from the open vessels; hence, it is termed *unavoidable*. In these cases flooding usually occurs previous to the coming on of labor, sometimes as early as the seventh month. It comes on as well at night, when the female is asleep in bed, as it does when she is going about, the first evidence she has being the free discharge of blood. Continuing for a time, it ceases itself, to again reappear in two or three weeks. In this way it may occur several times before labor comes on, in some cases producing great exhaustion.

With the first pains of labor, hemorrhage comes on, and continues to increase as the mouth of the womb dilates. Sometimes it is so profuse as to exhaust the female in a short time, but in others it is not so marked. If the womb contract strongly, so as to force the head of the child down firmly into the mouth of the womb, labor may be accomplished without much risk, but this is very rarely the case. In the majority of instances, skilled

assistance must be at hand early in the labor to save the life of the mother.

In these cases, if a physician can not be obtained at once, saturate cotton cloths with a strong solution of alum, and gently pass them up to the womb, then filling the vagina so that the blood can not escape. Let them remain until the physician arrives, keeping the patient perfectly still. If he can not be obtained, the labor progressing, and the discharge so profuse that it is evident that she can not survive long, let an attendant pass her hand into the vagina, detach the afterbirth and withdraw it. This will, in most cases, stop the flooding, when the case may be left to nature. No internal medicines do the least good, and it is worse than useless to give stimulants to keep up the strength as long as the cause of the hemorrhage continues. If the patient faints, it is all the better for her, and she should not be aroused, as during the fainting the discharge of blood ceases.

Except this, hemorrhage very rarely occurs before the birth of the child, except from great exhaustion. In these cases, a tincture of the oil of cinnamon, in doses of from half to one teaspoonful every few minutes, is one of our most efficient means. Gallic acid, in doses of five grains, may be used, and brandy or whisky given to support the strength.

HEMORRHAGE AFTER THE BIRTH OF THE CHILD.—With the expulsion of the child there is always more or less discharge of blood, and it usually amounts to from half a pint to one pint. In some cases the flooding is so profuse that the mother can feel it running from her, and the bed-clothing soon becomes saturated. It may commence immediately, or a short time after the child is expelled, and before the expulsion of the placenta. When very severe, the mother becomes pallid and faint, the pulse being feeble; symptoms which at once attract attention.

Immediately place the hand on the lower part of the bowels, and knead them with firm pressure, until the

womb contracts. At the same time make traction on the cord, to stimulate contraction and the expulsion of the placenta. The tincture of oil of cinnamon may be given internally, and frequently repeated, or the gallic acid used; if neither can be obtained, use the nutmeg and alum as heretofore recommended. Cold applications may also be used.

If the hemorrhage is so profuse as to quickly endanger the life of the woman, and medical attendance can not be obtained immediately, roll up your sleeve and pass your hand into the cavity of the womb. If you are frightened, now wait until you recover the use of your faculties, and then grasp the afterbirth, which will almost always be loose. Still keeping your hand in the womb, where it acts as a stimulant, and while the arm as a plug checks the flooding, knead the womb with the other hand until it contracts, forcing out both hand and afterbirth.

Continuing the internal remedies, let a bandage and compress be tightly applied, and keep the woman perfectly quiet. The same means will be employed in flooding after the afterbirth is discharged.

The mother should use great care after such a hemorrhage, as exertion, or raising up in bed may bring the flooding back. Careful nursing, however and remaining in bed for a longer period will obviate all its effects. It is not best to use stimulants after flooding, except with the advice of a physician, and the diet should be such as will digest easily and quickly, and not burthen the digestive organs. I prefer animal broths in these cases, as beef tea, or mutton or chicken broth, with crackers or bread.

RETENTION OF THE PLACENTA.—As heretofore remarked, the placenta, or afterbirth, may be retained for an hour or more, from want of pain, but will at length be discharged without trouble. In many of these cases it is detached from the uterine wall and will be found at the mouth of the womb, which it covers like a button in a button hole. The womb may not be sufficient to expel it at all when in

this position, hence physicians always remove it in such cases. The cord is grasped with one hand and made tense, and the finger of the other hand is passed up along it as a guide, until the edge of the placenta can be felt; the finger is then hooked over it and the edge is drawn down, thus removing it easily as we would unbutton a coat.

In other cases it passes into the vagina, but this canal is so relaxed and powerless that all the efforts of the woman are not sufficient for its expulsion. In this case twist the cord three or four times around the fingers and make steady traction, telling the mother to bear down forcibly. If a reasonable length of time has elapsed, and it will not pass, introduce a finger and hook it over the edge, or into its substance near the cord, and with the bearing down of the female it may readily be withdrawn without much force. The same plan should be pursued when the cord has been broken off.

There are rare cases in which the afterbirth is morbidly attached to the uterine wall, and requires the introduction of the hand into the womb for its removal. This does not occur, however, once in one thousand cases. In others, there is irregular or hour-glass contraction, and the afterbirth is retained on this account.

Recollect, that in any case, there is no immediate danger if the mother is not flooding, though she never can be considered safe until it has passed. As its detachment and passage from the womb depends upon its contraction, or pain, stimulating this by pressure over, or gently kneading the uterine globe, is one of the most efficient means.

INVERSION OF THE UTERUS.—In some very rare cases the womb is turned inside out, after the birth of the child, and is found in the position represented by Fig. 13. It has been supposed by many authorities that it was always caused by pulling on the umbilical cord. It is now believed that it depends upon its own irregular contraction, though too great force applied to the cord is the most

frequent exciting cause. The symptoms attending this accident are profuse hemorrhage and alarming prostration, the womb being found in the unnatural position represented.

FIG. 13.

*Inversion of the Uterus.*

There are few women with nerves strong enough to attempt to rectify the difficulty, and they should not attempt it if a physician can be obtained in a reasonable time. If no help can be had, peel off the afterbirth, and in the absence of pain, press the hand firmly against the center of the tumor and press it back to its proper position. Of course the hand will be within the cavity of the womb, where it should be retained until it contracts into a globe.

RUPTURE OF THE UTERUS.—This is one of the most dangerous accidents of labor, and is invariably fatal to the mother, though the child's life may be saved. It is, however, of very rare occurrence, and hence is little to be feared. The uterus always gives way during a pain, and

a portion, or all of, the child escapes into the cavity of the abdomen. The symptoms are very plain: the female experiences a sharp cutting sensation, and feels that something has given way, and in a moment there is very great prostration, fainting, or even death. The physician passes his hand into the womb, and even through the opening into the abdomen, and grasping the child by the feet, extracts it.

RUPTURE OF THE PERINEUM.—The tissue closing up the space between the vagina in front, and the bowel behind, is called the perineum, and this may give way during labor. It is usually caused by too rapid passage of the child's head, and sometimes by rigidity of the soft parts.

It may be avoided by properly supporting these structures during the last stage of labor, and especially by cautioning the mother against bearing down while the head is passing through the vulva. Much harm is sometimes done by the attendants constantly telling the female "to bear down," and insisting that she shall *bear down harder*. When the soft parts are rigid and unyielding, strict attention should be paid to this matter.

The results of this accident, when it is severe, are *very* deplorable, as the female can not retain the contents of her bowels, and there is constant tendency to displacement of the pelvic organs. There is one consolation, however, and that is, that it can be permanently cured by a surgical operation.

PUERPERAL CONVULSIONS.—The occurrence of convulsions during labor, is a very serious matter, and in some cases will prove fatal in spite of all treatment. The causes of *puerperal convulsions* are obscure, and vary in different cases. In some cases it is undoubtedly dependent upon deranged action of the kidneys for a long time previous, by which the blood is poisoned. In others, it depends upon an irritation of the nerves, produced by the labor.

The symptoms are very marked, and can not be mis-

taken. All at once the female becomes entirely unconscious, and has more or less violent convulsive movements of all parts of the body. Every function of the body is violent, even to the breathing, which is hissing. The convulsion may last but a minute, or it may continue for five, ten, or fifteen minutes, when it passes off, to recur again in a very short time. Thus it continues, the paroxysms becoming harder, and the intervals less, until it is arrested by medicine, or the sufferer dies.

Of course, a physician will be called as speedily as possible. Until he comes, give a teaspoonful of tincture of lobelia, every five minutes, in the intervals between the convulsions, until it produces vomiting, or the convulsion passes off. To assist its action, use an injection into the bowels of three teaspoonfuls of tincture of lobelia, one of laudanum, to half a teacupful of tepid water, retaining it by pressing a towel against the rectum.

CHLOROFORM IN LABOR.

“The distress and pain,” observes Dr. Denman, “which women often endure while they are struggling through a difficult labor, are beyond all description, and seem to be more than human nature would be able to bear under any other circumstances.” And, as Dr. Simpson remarks, “even the amount of agony endured in most cases of *natural* parturition, are abundantly severe. Viewed apart, and in an isolated light, the total sum of actual pain attendant upon common labor, is as great, if not greater, than that attendant upon most surgical operations. It is, I believe, education and custom, and perhaps the idea of its inevitable necessity, which have made physicians look upon the degree of natural pain and physical suffering accompanying natural parturition, as less deserving of consideration than it actually is.

“Is it right,” says the same author, “for the physician to interfere with these fearful sufferings and agonies, in

order to save and shield his patient from the endurance of them? Is it proper for him to exercise the skill of his art so as to moderate and remove these 'intolerable pains?' Would it be fit and meet in him to use human means to assuage the pangs and anguish attendant upon the process of parturition in the human mother?"

These questions present themselves to every physician and to every mother. Is it necessary that she should bear these pains? Not at all, because we have in chloroform an agent that will render her unconscious to suffering until the labor is completed. Some claim that the administration of chloroform for this purpose is in direct opposition to the will of the Almighty, who said, "In sorrow shalt thou bring forth children." Let these learned doctors bear such pain for a few hours, and their religious scruples would vanish into thin air.

The important question with the mother is, is it safe? This I can answer in the affirmative, as in my practice I have never seen the slightest ill effects, either during the labor or in getting up. My partner, Dr. R. S. Newton, has employed it in nearly every case he has attended for the last ten years, without a single accident; and this is the testimony of Dr. Simpson, who has administered it in over a thousand cases of labor. Its benefits are thus graphically described by the same writer:

"The practice of anaesthesia in midwifery not only saves the mother from the endurance of unnecessary mental anxiety and unnecessary physical agony, it saves her also from some of the dangers attendant upon parturition, by husbanding her strength and warding off the effects of that exhaustion and nervous depression which the pains and shock of delivery tend to produce. In most cases the mothers, after delivery, on waking from their anaesthetic sleep, have expressed their surprise at their own feelings of strength and well being; and many who have borne children previously, have gratefully declared to me the great difference which they have found between their

condition after being delivered under anæsthetics, and without pain and suffering, and their state of prostration after former labors, when they were subjected to the endurance of all the usual 'pangs and agonies' of parturition. Nor does the benefit end here. By annulling the parturient pains and shock, and their direct and primary depressing effects upon the constitution, we ward off, I believe, to a more or less marked extent, the chances and dangers of those secondary vascular excitements which are always apt to follow directly upon them. We increase the chances of a more speedy and a more healthy convalescence; and both patients and practitioners have, as a general rule, had occasion to observe, that the period of convalescence has been evidently curtailed and shortened by the previous adoption of anæsthesia during delivery."

PUERPERAL FEVER.

The lying-in woman is liable to a severe form of fever, which is called puerperal fever. It makes its appearance in the majority of cases before the ninth day, usually about the second or third day. In some cases it is undoubtedly caused by cold, in others it results from the absorption of decomposing animal matter from the womb or vagina, and in others it arises from epidemic or contagious influence.

It has not been definitely determined, as yet, whether the disease is contagious or not, yet some circumstances go to show that it is. Thus, an eminent physician in New York, doing a very large obstetric practice, had it to occur in every case that he attended one season, and had to quit his practice, while others in the same neighborhood did not have a single case. Such facts as these would go to prove that it would be very hazardous for a practitioner who is attending a case of puerperal fever, to continue to attend women in labor. Mothers should ex-

ercise a sound discretion in this matter, and if the family physician was thus objectionable, obtain some one else.

SYMPTOMS.—Puerperal fever usually makes its appearance with a severe chill, and pain and soreness in the region of the womb. This chill will frequently last for several hours, and is succeeded by a high fever. The skin becomes very hot, dry and husky, the pulse frequent and hard, the tongue dry and parched, the bowels bound up, urine scanty, and the nervous system much excited. As time passes the symptoms become more severe, the lochial discharge and the secretion of milk are arrested, and the patient is delirious. By the third or fourth day the symptoms will be very severe, and the most casual observer will observe that it is a very grave case of disease.

Passing on beyond the seventh day, the strength is much exhausted, and *typhoid* symptoms are marked. The tongue is brown or black, dark accumulations around the teeth, the bowels are swollen and very tender, and the lochial discharge, if not arrested, is very offensive. Day by day the patient becomes weaker, and all the symptoms more severe, until at length, if not arrested by treatment, the patient dies. In the main the symptoms are those of the severest typhoid fever, and the treatment and management the same. The patient should be early under the care of a skillful physician, and his directions as regards treatment and nursing should be implicitly followed, using that sound discretion which comes from knowledge, and which it has been my object in these two volumes to cultivate.

PHLEGMASIA DOLENS—MILK LEG.

This is a disease of the puerperal state, and usually occurs between the fourth day and third week after delivery. It may make its appearance in first labor, but in a majority of cases it occurs in women who have borne several children, and in those of a delicate and lax habit. The

cause of the disease is not well known, though it is supposed to arise from cold or over exertion.

SYMPTOMS.—The disease is usually ushered in with a chill of greater or less severity, which is succeeded by fever. With this the patient complains of pain in the lower part of the abdomen, loins and groin, not very severe, but a source of aching and soreness. In a short time one of the limbs commences swelling, and there is severe pain and tenderness in it. In the majority of cases, the first marked evidence of the disease will be slight enlargement and hardness of the calf of the leg, and when felt of, it will seem to be fast to the bone, and pressure on it will produce considerable pain.

The leg gradually increases in size, and is white, pale and shining; it is usually warmer than natural, though in some cases it is colder than the other limb. At the commencement of the swelling it will pit on pressure, but afterward becomes so tense that no impression can be made upon it. The entire limb is tender on pressure, but this is especially marked along the course of the femoral vein, which may be felt hard and rolling under the finger like a cord.

The disease is usually very slow, and the swelling may continue for six or eight weeks, or longer, though the fever usually subsides by the ninth day. In some cases the disease becomes chronic, and lasts for many months, or even years. In others, the inflammation is very high and terminates in suppuration, extensive abscesses being formed in the thigh, giving rise to a great amount of suffering and prostration.

TREATMENT.—Always get a good physician if it is possible; if not, the following plan may be adopted: Have the bowels freely moved with solution of citrate of magnesia, or equal parts of compound powder of jalap and cream of tartar, and keep them moderately open with the same, through the entire course of the disease. Add to a common sized tumblerful of water (four ounces) thirty

drops of tincture of veratrum, and twenty drops of tincture of aconite, and give it in teaspoonful doses every hour, when the patient has fever, and every two hours when the fever has subsided.

Have a large bucket of water hot, add mustard to it, and bathe the feet for half an hour, adding hot water to keep it as warm as the patient can bear it, at the same time using an infusion of pennyroyal, which may be continued as a drink throughout the disease. After the first three or four days, all the medicine the patient need take is the sedative, and a solution of half an ounce of acetate potash to four ounces of water, a teaspoonful every two hours.

As long as the pain continues, bathe the lower part of the bowels, back and loins, with equal parts of tincture of arnica, tincture of camphor and water. The best application that can be made to the limb is stramonium, or jimson-weed leaves, bruised and moistened with hot

FIG. 14. vinegar and water. In place of this, smartweed may be used in the same manner. When the acute symptoms have passed off, I always apply a flannel bandage, as shown in the annexed Fig., sometimes wetting it with the arnica mixture above named.



Bandage.

PART II.

DISEASES OF WOMEN.

Women are liable to the same diseases as men, and, in addition, others which are dependent upon their special organization. These special diseases are divided into functional and structural—the first being those which are dependent upon deviation from the natural or healthy action of the reproductive organs; and the second upon changes in their structure. These diseases are of very frequent occurrence, and entail a great amount of suffering among women, being in the ratio of about five to one of other common affections.

Nearly every other woman you meet, has some trouble with these organs, and a very large number have their health permanently impaired, and lead wretched lives in consequence. American women seem to have a larger share of them than any other nation; and it is not difficult to account for this fact. As a general rule, our women have less recreation, and take less exercise, than any other people. An English woman of the higher class attends to her household affairs, sees to her gardens, and takes abundant exercise in the open air, riding or walking. In addition to this, are periods of relaxation with her family and friends, which seem to give variety to life, and greatly conduce to health. Even the poorer classes, though they have to labor hard, have their periods of relaxation and their open air exercise.

With American women, it is a continued and monot-

onous confinement to the house; or if they go out they must be dressed and act with such precision that they neither have exercise or relaxation. The husband and male relations and friends are immersed in business, which commences with their getting up in the morning, and ceases only when they close their eyes in sleep. They have no time for any thing but business, and are so absorbed by their cares, that any thing that would change the current of their thoughts, would be deemed almost a sacrilege.

A man will go poetically wretched, or morbidly misanthropic, or any great misfortune will overthrow him entirely, drive him to insanity, lure him to slip out of life through the terrible by-road of suicide; but he rarely drags on existence from year to year with "nerves," "low spirits," and the various maladies of mind and temper that make many women a torment to themselves, and a burthen to all connected with them.

Why is this? and is it inevitable? Any one who could in the smallest degree answer this question, would be doing something to the lessening of a great evil—greater than many other evils which, being social and practical, show more largely on the aggregate census of female woe.

Most assuredly, however unpoetical may be such a view of the matter, the origin of a great deal of unhappiness is physical disease; or, rather, the loss of that healthy condition of body which, in the present state of civilization, so far removed from a state of nature, can only be kept in any individual by the knowledge and practice of the ordinary laws of hygiene—generally the very last knowledge that women seem to have. The daily necessities of water, fresh air, proper clothing, food and sleep, with the due regulation of each of these, without which no human being can expect to live healthily or happily, are matters in which the only excuse for lamentable neglect, is still more lamentable ignorance.

An ignorance the worse, because it is generally quite

unacknowledged. If you tell a young girl that water, the colder the better, is essential to every pore of her delicate skin every morning; that daily out-door exercise, short of extreme fatigue, regular meals, employment and amusement, are to her a vital necessity; that she should make it a part of her education to acquire a certain amount of current information on sanitary science, and especially on the laws of her own being, physical and mental: tell her this, and the chances are she will stare at you uncomprehendingly, or be shocked, as if you were saying to her something improper, or answer flippantly, "Oh! yes; I know all that."

"But what good does it do her?—when she lies in bed till ten o'clock, and sits up till any hour the next morning; eats all manner of food at all manner of irregular intervals; is horrified at leaving her bedroom window two inches open, or at being caught in a slight shower; yet will cower all day over the fire in a high woolen dress, and put on a low muslin one in the evening. When she wears all winter thin boots, gossamer stockings, a gown open at the chest and arms, and a loose mantle that every wind blows under, yet wonders that she always has a cold—and weighs herself down in summer time with four petticoats heaped one over the other, yet is quite astonished that she gets hot and tired so soon! Truly, any sensible, old-fashioned body, who knows how much the health, happiness and general well-being of this generation—and, alas! not this generation alone—depend upon these charming, lovable, fascinating young fools, can not fail to be aggravated by them every day."

However humiliating the fact may be to those poetical theorists who, in spite of all the laws of nature, wish to make the soul entirely independent of the body—forgetting that if so, its temporary probation in the body at all would have been quite unnecessary—I repeat there can be no really sanitary state of mind without a sane condi-

tion of body; and that one of the first requisites of happiness is good health.

AMENORRHŒA.

By amenorrhœa we understand the suppression of the menstrual discharge when it has once appeared, or its non-appearance at the period of puberty. The first we designate as suppression of the menses, the second we call retarded menstruation.

RETARDED MENSTRUATION.—As we have already noticed when describing the physiology of the reproductive apparatus, menstruation, or the monthly discharge of blood in women, usually occurs between the age of twelve and sixteen years. It may come on earlier than this, or may not appear until the eighteenth or twentieth year. Its advent is marked by the developement of the system, from the girl to the woman. The organs of generation increase in development, the breasts become prominent, and the habits and tastes of the young female undergo a marked change. In addition to this, she usually experiences, for two or three periods, a pain in the back and limbs, weight in the pelvis, and feeling of languor that is unusual, before the discharge comes on.

If all of these signs of puberty have made their appearance, and the discharge does not come on, and especially if she exhibits evidence of disease, we say she has amenorrhœa. The most common symptoms are headache, a sense of fullness and weight about the bowels, a florid countenance, torpor, lassitude, pain in the back and loins, irregular circulation, and more or less disturbance of the nervous system.

TREATMENT.—The non-appearance of the menstrual discharge may be owing to a want of circulation of blood in the organs, or to want of normal stimulation. This is generally the case when the girl is of a lymphatic temperament, and sluggish in her appearance and movements. In

this case laxative doses of aloes, from one to three grains, twice a day, with the use of the hot foot bath, and an infusion of pennyroyal at night, with sometimes the application of mustard plasters to the inside of the thighs, will be sufficient.

In the second case, there is too much blood sent to these organs, and too much excitation. This is marked by the pain, weight, and sense of fullness in the pelvis, flushed face, pain in the back, etc. Here we would give a cathartic of cream of tartar, citrate of magnesia, or a seidlitz powder. Bathe the feet well in hot water, give the pennyroyal tea, and if this does not seem sufficient, let her sit over the vapor of bitter herbs.

In the third case, the young girl presents marked evidence of anæmia. She is pale and bloodless, poor in flesh, and feeble, her appetite is not good, and her food digests slowly and imperfectly. In such a case as this we would give the bitter tonics and iron, and with bathing, proper exercise, and a nutritious diet, build up the system, and increase the quantity of blood, when in all probability the discharge would appear.

SUPPRESSION OF THE MENSES.—The monthly discharge is most frequently arrested by cold contracted during a menstrual period, as by getting the feet wet, sitting on the damp ground, washing the body with cold water, etc. Though this is the most frequent cause, yet it may be arrested from severe mental emotion at these times, and from other acute diseases. A long ship voyage is likely to cause arrest of the menses, as we observe in women coming from a foreign country.

The amount of disturbance consequent upon suppression of the menses varies very much in different cases. In some there is a slight headache, a feeling of weight in the pelvis, pain in the back and in the limbs, and more or less feverish symptoms. These recur at each menstrual period and continue for five or six days, when they pass off. In most cases the general health suffers to a greater or less

extent, a cachectic condition of the system being induced. Occasionally hemorrhage occurs from some other part of the body, at the menstrual period, as from the nose, lungs, stomach, or from piles; this is called *vicarious menstruation*, and sometimes is very persistent.

TREATMENT.—The treatment will vary much in different cases, though if mild means fail, a physician had better be consulted. When the discharge is arrested by cold, bathe the feet thoroughly in mustard water, and drink freely of a tea made of smartweed, pennyroyal or ginger. If this is not sufficient, use the hot sitz bath, continuing it for an hour at a time, or sit over the vapor of bitter herbs, as tansy, hoarhound, hops, etc. A very mild emmenagogue pill is formed of aloes, myrrh, sulphate of iron, and oil of savin, equal parts, divided into ordinary sized pills. They may be taken one every three hours, until they act on the bowels, then stop, and recommence with them the next day. In long continued cases, they should be commenced three or four days before the expected period, as that is the only time that the discharge can be brought on.

DYSMENORRHŒA.

By dysmenorrhœa, we understand a painful and difficult flow of the menses, they being generally scanty in quantity; in severe cases containing clots, fibrinous shreds, or even an entire false membrane. In many women the menstrual flow is always accompanied and preceded by pains in the back, limbs, and in the lower portion of the abdomen, though it is generally of short duration and not very severe. When the symptoms are very severe, dysmenorrhœa is said to exist.

SYMPTOMS.—The symptoms of this affection are so marked that they can not be mistaken. Sometimes the general health of the female is affected for two or three days, preceding the expected period, and there are various unpleasant sensations in the pelvis. At others, the first

symptom is sharp pain commencing in the region of the womb, and passing to the back. In some cases they are intermittent, like labor pains, but in others they are constant. The discharge of blood is very small at first, sometimes passing but a drop at a time, and attended with the greatest agony. Occasionally the pains pass down the thighs, or even to the feet, and the female describes the aching in the legs as almost intolerable, so that she hardly knows what to do with herself.

In some cases the pain as above described continues but one or two days, when the discharge becoming free, the pain ceases. In others it continues without intermission from the commencement of menstruation until its cessation. In others, again, small fibrinous shreds are passed with intense pain, which then ceases for some hours, to come on again in the same manner. And in some cases an entire coat of the cavity of the womb is passed, with pain that resembles labor pains.

Females that suffer severely with dysmenorrhœa, are almost always sterile. It may depend upon disease of the womb, or contraction of its mouth, or it may be essentially a neuralgic condition. Sometimes it comes on with the first appearance of the menstrual discharge, but at others it dates from an attack of some disease, or from a severe or badly managed labor.

TREATMENT.—This is a very persistent disease, and usually requires more than domestic skill for its management. During the paroxysm, efforts should be employed to relax the system, and promote the menstrual discharge. This may be effected in a majority of cases by bathing the feet thoroughly in warm water, lying down, and having a brick heated hot, wrap it in flannel cloths wrung out of vinegar, and put it between the thighs near the vulva. The vapor should not be allowed to escape; it envelops the lower part of the body, and will in a majority of cases give relief.

I would not advise the use of internal medicines, but

an injection into the bowels of a teaspoonful of laudanum, two teaspoonfuls of tincture of lobelia, to a teacupful of warm water, will give great relief. In some cases it arrests the pain at once, and two or three repetitions is sufficient to carry the female through the period with comparative ease.

For the permanent cure of the disease, various means are made use of. First, it is necessary that any disease of the uterine organs that may exist, should be removed. Sometimes there is inflammation of the neck of the uterus; at others, slight ulceration, and at others a diseased condition of the mucous lining. Second, the general health of the patient must be restored by appropriate treatment; and it is not unfrequently a difficult matter with those who have but little experience to determine accurately what is wrong. Third, special means are used to overcome the irritable condition of the nerves distributed to the uterus.

For the latter purpose I have obtained good results from the use of the bromide of ammonium, two drachms to four ounces of water, a teaspoonful four times a day. The tincture of staphysagria, two drachms to four ounces of water, a teaspoonful every four hours, has also given good results. The tincture of macrotys, and extract of conium and stramonium, are also used, but should always be taken with the advice of a physician.

MENORRHAGIA.

Profuse menstruation, or flooding at the monthly period, is called menorrhagia. It may occur at any age, and either in the plethoric and robust, or in those of a delicate and exhausted habit of body. As before remarked, when describing the functions of these organs, the discharge varies greatly in different persons, in some being very small in quantity, in others being naturally very profuse, and yet compatible with health.

Excessive menstruation may occur in two ways: either as regards the frequency of its return, and its duration, or the quantity lost in a given period of time. Thus, in some women, the discharge would not be considered too large on any day, but it will continue for from eight to twelve, or fifteen days, and recur at intervals of two or three weeks, so that there is but a short time between the periods. In these cases the long-continued discharge produces great exhaustion, and the female exhibits all the symptoms of an impoverished blood; she is feeble, thin in flesh, has but little strength, and all the functions of the body are more or less impaired. The disease is sometimes attended with a profuse white discharge during the intermenstrual period, which increases the debility.

In the other cases, the discharge of blood is very profuse, and frequently it passes in clots. Occasionally the flooding is so severe that the woman will have to take her bed, and her clothing will be saturated with blood. In some cases the flooding is so excessive as to prove dangerous to life, unless prompt means are used to stop it.

TREATMENT.—To check the too free discharge of blood in either case, at the time, I would recommend the essence of cinnamon, prepared by adding one drachm of the oil to two ounces of alcohol. The dose would be from half to one teaspoonful, as often as it seemed to be necessary. In place of this, gallic acid, in doses of five grains every half hour or hour, will almost invariably moderate the discharge. Equal parts of alum and nutmeg, as much as will lie upon a ten cent piece, will answer in case the others can not be obtained. •

If the flooding is severe, let the patient go to bed and stay there until it ceases. If the feet are cold apply hot irons to them, but keep the body cool. In very severe cases, when it is of great importance to check the discharge speedily, plug the vagina with soft cotton cloth, or an old silk handkerchief, as recommended under the head of abortion.

For the permanent cure of the disease, in the first class of cases named, I have used a preparation of equal parts of the sulphate of beeberina and gallic acid, in doses of four grains four or five times a day. The oxide of silver, in the form of pill, one grain four times a day, has also given good results. In addition to this, she should have a bitter tonic, and some preparation of iron to increase the appetite and strength, and improve the quantity and quality of the blood. The collinsonia tonic, 46, would be a most excellent preparation.

LEUCORRHŒA--WHITES.

Leucorrhœa is a whitish discharge from the vagina, consisting of mucus, or mucus and pus; it is generally known by the name of *whites*. Very many women have it slightly at times, and quite a large number have it to such an extent that it is an exhausting drain upon the system.

The causes of leucorrhœa are various. In some cases it arises from chronic inflammation of the mucous membrane of the vagina; in others, from debility and exhaustion produced from other diseases; from too frequent child-bearing, or from prolonged nursing. In other cases, again, it is caused by disease of the neck of the womb, and in the rarer cases it arises from disease of the lining membrane of this organ.

VAGINAL LEUCORRHŒA.—In vaginal leucorrhœa, the discharge may be white, but is most generally a creamy white, or even yellowish. It is a creamy fluid, possesses little tenacity and is opaque. It may be discharged in very large quantities, and in such cases the vagina will be found relaxed and flabby. Frequently there are sensations of soreness and tenderness on pressure, and in a majority of cases there is a feeling of weight, pressure, and bearing down, which is very annoying. Occasionally there is some trouble with the bladder, with a frequent desire to make water, pain and burning when it passes, or there is

difficulty in passing it. There is usually constipation of the bowels.

If the disease has continued long, the general health is considerably affected. She is weak and feeble, her appetite is poor or variable, digestion imperfect, with frequently quite severe dyspepsia. It would seem strange how so slight a trouble could produce such serious results, did we not know the intimate sympathy that exists between these organs and the general system.

TREATMENT.—Proper attention to the person will almost always prevent this disease. Every woman should have a rubber pump syringe, and should use an injection of moderately cold water once a day, or at least two or three times a week, for the purpose of cleanliness. The natural discharges, by being retained, sometimes give rise to irritation and relaxation, and the discharge we are speaking of.

In mild cases, the frequent use of cold water alone will sometimes be found sufficient to arrest the discharge. In other cases, a tea of yellow root may be used as an injection, or a decoction of white oak bark. I more frequently prescribe chlorate of potash, one ounce; sugar of lead, one drachm, to be divided into six powders; one of these is added to a pint of water and used as an injection. One drachm of alum to a pint of water will also answer a good purpose.

In using the injection, first wash the parts by using simple water freely, then, lying down, introduce the tube high up in the vagina, and throw in the medicated injection. This should be retained for five or ten minutes, in order to obtain its full advantage. A great many women, when directed to use an injection, do it so imperfectly, and use so small a quantity, that no good results from it.

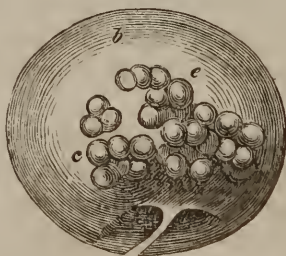
As regards the general treatment, I sometimes use the tincture of muriate of iron, in doses of twenty or thirty drops, four times a day, with marked advantage. In other

cases, equal parts of cubebs and carbonate of iron, as much as will lie upon a ten cent piece, three or four times a day, exerts a good influence. In the majority of cases, however, the collinsonia tonic will be all the internal medicine the patient requires.

UTERINE LEUCORRHŒA.—The discharge may come from the neck of the uterus in rare cases, or from its cavity, and is then called uterine leucorrhœa. In some cases there is ulceration of the neck, in others chronic inflammation of its cavity, and in others a diseased condition of its entire mucous lining.

The discharge varies in character, according to the seat and character of the disease producing it, when the external surface of the neck of the womb is diseased, as is shown in the cuts below, the discharge will be a yellowish or yellowish-green, creamy fluid. When the discharge comes from the cavity of the cervix, or neck, it is stringy, transparent, very tenacious, and resembles white of egg. When it comes from the cavity of the uterus, it is generally thin and watery, looks dirty, and has an unpleasant odor.

FIG. 15.



Neck of the Womb in Leucorrhœa.

Fig. 15 represents the appearance of the neck of the womb in a severe case of uterine leucorrhœa. There was chronic inflammation, softness and dilation of the mouth, and several small roundish elevations, as seen in the cut.

Fig. 16 represents a case of similar character, the menses were abundant and irregular, and there was severe leucorrhœa. The neck of the womb was livid, and covered with small vesicles, and these, with the mouth of the womb, bled on pressure, and during movement of the limbs.

FIG. 16.

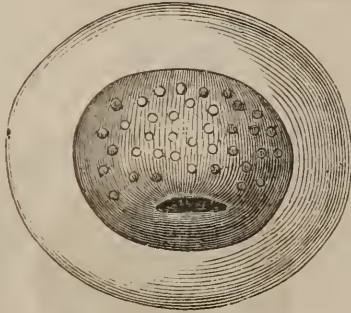
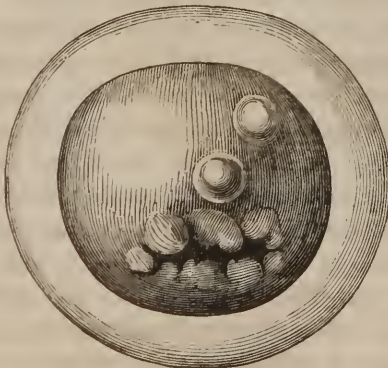


Fig. 17 represents a more severe case, there was inflammation and ulceration, the menses being frequent in their recurrence and abundant, and between the periods there was a leucorrhœal discharge. The patient had a great

FIG. 17.



amount of pain, which was increased by pressing on the womb.

Fig. 18 represents a case of severe inflammation of the neck of the womb, which was enlarged, and had a well defined ulcer extending into its mouth. The woman suffered much pain, with a sensation of dizziness and bearing down; the leucorrhœal discharge was not in as large quantities as the preceding cases.

FIG. 18.



In uterine leucorrhœa the general health is considerably affected, especially if the discharge is large. The patient complains of a sensation of weight and bearing down in the pelvis, soreness across the lower part of the bowels, and aching and pain in the back. The monthly periods are almost always irregular, recurring before their time, and continuing longer. The discharge is sometimes darker colored, and unpleasant, but in others may be more or less mixed with the discharges, or may be natural.

The appetite is frequently impaired, and digestion is more or less imperfectly performed—the patient has dyspepsia. The bowels are constipated, and sometimes there is a sensation of uneasiness and pressure in the lower bowel, and not unfrequently an unpleasant sensation in

passing water If the disease is severe, the female will in most cases be sterile.

TREATMENT.—It is only the milder cases which will prove amenable to domestic medication, in others a physician should be consulted. We first endeavor to sustain the general health by appropriate means. Thus we get the bowels regular, by the means named in Vol. I., paying especial attention to their evacuation at a certain period every day. The urinary organs should also be noticed, never allowing the bladder to become unduly distended. A daily bath is of great importance, commencing with the water warm enough to be pleasant, and gradually getting it cooler, until cold water can be used. A basin of water, a sponge, and a coarse towel, is all that is necessary for a bath, sponging the surface and then rubbing with the towel until a glow of heat is experienced on the skin. The lower part of the abdomen and thighs may be bathed in salt water, rubbing them thoroughly.

Internally, I would give equal parts of tincture of col-linsonia, No. 45, and compound tincture of corydalis, No. 56. This would improve the appetite and digestion, tend to keep the bowels regular, and act gently on the kidneys and skin. If the female is thin in flesh, and exhibits evidences of poor blood, iron may be added.

We rely mostly upon local applications in these cases, using the pump-syringe. Let the vagina be thoroughly washed out with cold or warm water, whichever feels best, and then use the medicated injection. Chlorate of potash, one ounce, sulphate of zinc, one drachm, divided into six powders, and one of these added to a pint of water, is an excellent injection. Alum, two ounces, and sulphate of zinc, one drachm, divided into six powders, also answers a good purpose. The yellow root, heretofore mentioned, and the white oak bark, may also be used. A very good injection is made by taking equal parts of dogwood bark and yellow dock root, and making a strong infusion of them with boiling water.

When there is much irritation and soreness, we sometimes obtain the most advantage at first from the use of equal parts of milk and water, warm. Slippery-elm or flaxseed tea may be used in the same cases. In the severer and more persistent cases of the disease, it becomes necessary to consult a physician, have an examination made to determine the condition of the organs, and have local remedies applied to the diseased parts.

AN EXAMINATION.

Many women suffer for months, or even years, until their health is undermined, and their happiness destroyed, before they will make up their minds to have an examination made, to determine the seat and character of their disease. There is no doubt but that it is very unpleasant to have an examination made, yet it must be recollected that very frequently it offers the only chance of a restoration of health. The physician must know what part is diseased, and the nature of the disease, before he can prescribe intelligently. Hence, if the sufferer wishes to get well, the earlier she submits to the only means that will cure her, the better she will be off. There is little use postponing the time, in hopes that she may get better, for these cases rarely or never get well without appropriate medicine.

An examination is not much if the woman views it properly. It is something that nearly every woman has to undergo at some period of her life, and the physician should be regarded as a friend, and one conversant with all that pertains to the human system, and it is his vocation to do these things, thereby relieving suffering and distress.

In some cases an examination with the finger is all that is necessary. The physician having appointed a time to meet the lady for this purpose, she should have a female friend or acquaintance with her. Let some lard or oil be

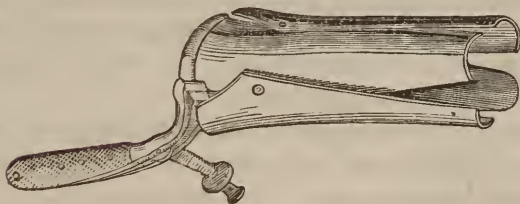
placed handy, with a basin of water, soap and towel. Now let her lie down on the bed, on her back, throwing a quilt or spread over her. The physician passes his finger up to the womb, and by carefully feeling of its surface, its mouth, and the vagina, he is enabled to determine pretty accurately what the difficulty is.

In some cases it is necessary that the parts be seen, and in those an instrument called a *speculum* is used, to dilate the parts, and throw light up to the uterus. Figures 19 and 20 represent the two forms of instruments used.

FIG. 19.

*Glass Speculum.*

FIG. 20.

*Four-bladed Speculum.*

Their passage is attended with little or no pain, and their use is rarely objected to when the lady believes it necessary, and has confidence in her medical attendant.

Sometimes it becomes necessary to examine the internal cavity of the womb, when an instrument called a *uterine sound*, is employed. It is passed through the mouth of the womb into the cavity, and should always be used with great care.

CHLOROSIS.

A peculiar sickness, which sometimes affects young girls about the period of puberty, is called chlorosis, or green sickness. It is always characterized by anemia of the system, and a yellow, dirty-green pallor of the skin. When a disease of early youth, it is almost invariably connected, either with entire absence of menstruation, or with a scanty, painful and irregular performance of the function; and if a disease of later life, in addition to these causes, it may have been preceded and produced by menorrhagia or leucorrhœa.

It is strictly a disease of the blood, and may occur in either males or females, though very rarely in males. When developed in the female, it is nearly always associated with some derangement of the menstrual function, usually an arrest of this secretion. The blood-globules are diminished in quantity and the blood becomes thin and watery. In consequence of this the appetite and digestion are impaired, the person wastes in flesh, and day by day becomes weaker. She dislikes to take exercise, is easily fatigued, is not cheerful, but loves solitude, and frequently weeps without cause.

Not only is the appetite impaired, but it is perverted, food is loathed, and innutritious substances desired, as chalk, dirt, charcoal, etc. The bowels are nearly always constipated, the tongue is coated with a dirty-white fur, and there is flatulence and all the symptoms of indigestion. The breath is frequently offensive, eructations of gas from the stomach, headache, palpitation of the heart, and a quick and easily compressed pulse.

TREATMENT.—In very mild cases, the collinsonia tonic will be the only internal remedy required, the bowels being kept regular by the means heretofore recommended. In the severer cases, the medical treatment will be under the direction of a physician, and we have only to describe the hygienic measures and nursing which will be found as

appropriate for other diseases of like character, as they are for this.

In regard to the hygienic treatment, I can not do better than to quote from M. Colombat. He says: "Whatever may have been the cause that has brought on chlorosis, we should remove the patient from all exposure to cold and humidity; she should breathe a dry, pure, and moderately warm air, and it is because these conditions exist during the spring and autumn, that those seasons are more favorable to the cure of the disease. A dry, breezy situation, in a sunny exposure, ought to be recommended. Clothes, which by the nature of their tissue, slightly irritate the skin, are to be preferred to any others. Flannel worn next to the skin, and especially alcoholic and aromatic frictions to the whole surface of the body, should likewise be proposed, with the view of exciting the action of the capillary vessels, of inviting the blood into them, and promoting perspiration. The food must consist of roast meats, fresh eggs, farinaceous vegetables, ripe fruits, and bitter and aromatic plants; for example, succory and celery. As a drink during meals, we may employ with advantage a mixture of chalybeate water with wine. Between the repasts, the patient may allay her thirst with some refreshing, slightly acidulated drink. Nevertheless, though a careful regimen ought to be strictly observed, it is not well to be too exclusive; if we meet with great reluctance in giving up the injurious articles which the patients desire, it would be necessary at first, to respect their longings, however strange they might seem, and even to satisfy them, unless they were directed to substances evidently hurtful. We should always commence by regulating the meals, and by forbidding fruit, salad and all crude articles; we ought, moreover, to consult the digestive functions, and wholly proscribe articles well known to be indigestible.

"Whatever be the aversion to exercise felt by chlorotic persons, we ought invariably to insist upon its employment, regulating it, however, by the strength of the patient

Should the muscular debility be so great as to prevent her from walking, we must resort to mixed and passive exercises. Riding in a carriage, or still better, on horseback, especially if a man's saddle is used, in open and elevated places, where the air is pure, are proper modes of exercise, particularly if pleasant conversation can be added to the charms afforded by diversity of views and landscapes. Boating excursions, which exert a favorable effect upon all the organs, and which unite to all the advantages of exercise, that of being agreeable to young persons, and of producing a useful stimulation by the presence of individuals of the opposite sex; music, which occasions a salutary excitation in lymphatic persons, and finally, sea bathing, and swimming in running water, are different hygienic means, which it is well to recommend to nervous, sad and melancholy women, and to those of great moral sensibility. Traveling can not be too strongly recommended to persons in whom the disease is kept up by acute sorrow, or by any moral affection whatever; the use of mineral water taken at the springs, offers in this respect, incalculable advantages, not only from the medicinal action of the waters themselves, but also, because the patients enjoy at such places the various charms of a numerous and brilliant society, and attractions which are constantly changing.

“The use of very tight corsets ought to be forbidden; sleep should not be protracted beyond eight or nine hours, and care must be taken that the patient's bed is neither too warm nor too soft, because such beds often increase the feebleness and constipation of very sensitive women, especially those in whom the chlorotic state has been developed and maintained under the influence of disappointed love. We should forbid exciting drinks, wine, highly nutritious food, vivid emotions, the frequenting of balls and shows, the reading of highly-wrought romances, the examination of lascivious pictures, and lastly, we should, as far as possible, suppress all circumstances capable of

disturbing the sensibility, or of exciting the passions too strongly."

HYSTERIA.

Of all diseases to which women are subject, this is probably of most frequent occurrence, though usually in a very mild form. Though we witness it in some of its forms so frequently, there are but very few women who will admit that *they* ever had *hysterics*, though perfectly conversant with the disease in others. It is generally regarded as an evidence of a weak mind, or as being put on for the occasion, a species of devilishness that could be helped if they were disposed. These are mistaken notions; hysteria is as much a disease as convulsions, or paralysis, and belongs to the same class of affections, and the woman who is subject to it, either in its mild or severe form, is to be pitied rather than condemned.

It is true, that certain impressions made upon the mind will keep it off, or arrest the paroxysm. In fact the female herself, has, to a considerable extent, command over it, and can successfully resist it or allow it to come on.

SYMPTOMS.—The symptoms vary very greatly in different cases, being sometimes a simple aberration of the mind for the time being, and in others the severe convulsive affection described below. In many instances it will be slightly manifested by an unnatural gaiety, laughing when there is nothing particularly laughable, and in many ways showing a want of judgment. In other cases it will be the reverse. She is melancholy, mopes, loves solitude, cries without cause, and seems to use every endeavor to make herself miserable. In a third class of cases, she is miserable, fretful, and quarrelsome—nothing goes right, and no one does right, and she feels like all the world were her enemies, and occasionally manifests it by the direst tongue lashings and scoldings that it is possible for her to get rid of.

"Most of the disquieting feelings, strange and way-

ward fancies of nervous females arise from hysteria. A paroxysm is usually preceded by general uneasiness, anxiety and oppression; a sensation of choking, or as if a ball were rising up from the abdomen into the throat, to which sensation the appellation of *globus hystericus* has been given; stiffness about the larynx, headache and cramps. M. George says: 'Hysteric patients in the hospital of the Salpetriere, are so well accustomed to take warning by these precursory symptoms, as never to be seized unexpectedly; they go to bed, and are tied down until the fit is over.' Sometimes the paroxysm ends here; but more generally the anxiety and sufferings increase, extreme depression of spirits, often weeping, ensues; there is a painful sense of stiffness and coldness of the limbs; noise in the ears; vertigo; confusion, and to these rapidly succeed temporary loss of sense and consciousness, and of command over the voluntary muscles, during which, the most vehement struggles are alternated with moments of repose. Occasionally there is a tetanic rigidity of the muscles of the trunk or back, and the body is thrown up in the form of an arch, but the limbs are more generally contorted; the patient often beats her breast, tears her hair, grinds her teeth, bites the tongue or lips, or otherwise injures herself. The assistants are often struck, bitten or scratched, and have vociferous epithets heaped on them; terrific screaming, sobbing, laughing and vacant staring may rapidly succeed each other. During the struggling, the heart beats tumultuously, the countenance becomes flushed and swollen, and the breathing laborious. After a variable continuance of from a few minutes to some hours or even days, of repeated intervals of struggling and repose, as here described, the patient either falls asleep or gradually returns to a state of consciousness and her ordinary condition, save feelings of fatigue and soreness, which disappear in a few days. Such are the prominent features of the hysteric paroxysm; but it varies greatly in intensity and duration. The convulsions may be severe, with lucid

intervals, and of frequent occurrence for days, or a deep, quiet sleep or coma may fill up the intervals, from which nothing can arouse the patient. In some women, the paroxysms return monthly, or at the menstrual flow; in others, at variable intervals, dependent on disturbances of the physical or mental equability. It is remarkable that plumpness of person, roseate hue of countenance, and general appearance of good health are not incompatible, but often attend the worst of sufferers from this affection through life, so faithfully is the nutritive function preserved amid the many and frequent storms of nervous functional derangement.

TREATMENT.—The treatment of hysteria requires a great amount of care, as the hysterical symptoms are only evidence of some other disease. In persons who seem strong and robust, some uterine disease will be found at the bottom of the trouble. In those of a feeble and delicate constitution, means will have to be used to restore the general health.

In a severe attack of hysteria, we can almost always arrest the paroxysm by the administration of equal parts of tincture of lobelia and tincture of assafœtida, in teaspoonful doses every ten or fifteen minutes. The remedy is unpleasant, but very certain, in fact its unpleasantness is a decided advantage, the mental impression being as important as the physical. The same general plan should be adopted when the patient is feeble and anæmic, that was recommended under the head of chlorosis. But the treatment for the permanent cure should always be under the direction of a physician.

CHOREA—ST. VITUS' DANCE.

This affection, known commonly as *St. Vitus' Dance*, occurs most generally about the age of puberty, though it sometimes appears as early as the sixth or eighth year, and as late as the thirtieth, and in some cases later than

this. It is confined principally to the female sex, but in rare cases it is met with in the male. Most generally it is associated with some derangement of the sexual organs, and it is not unfrequently associated with hysteria. We usually find it in persons of feeble health, and precocious mental development, but in some cases, in persons of the opposite character, in which it may be induced by torpor of the liver and bowels, deranged secretion of the skin and kidneys, and from close confinement or sedentary occupations.

The modern disease received its name, doubtless, from the dancing maniacs of the middle ages. The "dancing plague," or St. Vitus' Dance, commenced in Strasburg in 1418, and is thus described by Burton: "Chorus Sanctæ Viti, the lascivious dance, as Paracelsus calls it, because they that are taken with it can do nothing but dance till they are dead or cured. It is so called for that the parties were wont to go to St. Vitus for help, and, after they had danced there awhile, they were certainly freed. 'Tis strange to hear how long they will dance, and in what manner, over stools, forms, tables; even great-bellied women sometimes (and yet never hurt their children) will dance so long that they can stir neither hand nor foot, but seem to be quite dead. One in red clothes they can not abide; music above all things they love; and therefore magistrates in Germany will hire musicians to play to them, and some lusty, sturdy companions to dance with them."

Another form of the dancing mania, termed St. John's Dance, commenced in 1374, and extended over the greater portion of Europe. "At Cologne, the number possessed amounted to more than five hundred, and at Metz the streets are said to have been filled with eleven hundred dancers. Peasants left their plows, mechanics their workshops, housewives their domestic duties, to join the wild revels, and this rich commercial city became the scene of the most ominous disorder; secret desires were

excited, and too often found opportunities for wild enjoyment; and numerous beggars, stimulated by vice and misery, availed themselves of this new complaint to gain a temporary livelihood. Girls and boys quitted their parents, and servants their masters, to amuse themselves at the dances of those possessed, and greedily imbibed the poison of mental infection. Above a hundred unmarried women were seen roving about in consecrated and unconsecrated places, and the consequences were soon perceived; gangs of idle vagabonds, who understood how to imitate to the life the gestures and convulsions of those really affected, roved from place to place, seeking maintenance and adventures, and thus, wherever they went, spreading this disgusting spasmodic disease like a plague; for, in maladies of this kind, the susceptible are infected as easily by the appearance as the reality.”—*Hecker*.

This gives the origin of the name of the affection we are now considering, and though there is no similarity between the ancient and modern St. Vitus' Dance, the description just given illustrates the ease with which nervous affections of this kind may be propagated. And it is a fact, proven by numerous instances in hospital practice, that attacks of hysteria, epilepsy, and chorea, will be excited by witnessing the malady in another.

SYMPTOMS.—The first evidences of chorea, are occasional involuntary movements of the hands and facial muscles, and an inability to sit quietly in one position. Very frequently the fingers are quickly and involuntarily moved, and when the patient uses the hands, it is with a quick, unnatural movement. As the disease progresses, the involuntary movement becomes continuous, some part of the body being constantly in motion, and the movements are now very much exaggerated. If the patient attempts to do any thing, she seems to have but partial control over her muscles, and while they are being directed to the end intended, they are going through a succession of movements entirely independent. So great is this some-

times, that the patient can not sit still, nor keep the hands quiet for a moment, and her walking is irregular from the same cause. The facial muscles are sometimes very much involved, and the attempt to speak, or give expression to the emotions, is followed by various contortions of the countenance, which would be laughable were they not connected with so serious a malady. Sometimes it is almost impossible for the patient to express herself intelligibly, owing to spasmodic action of the muscles of the mouth and of the larynx.

As before remarked, the general health is usually impaired previous to the commencement of the disease, and this becomes more marked as it progresses; symptoms of anæmia are of common occurrence, the skin being blanched, the pulse feeble, the lips and gums pale, variable appetite, imperfect digestion, and constipation of the bowels. The mind is more or less affected, the patient being low spirited, and desiring solitude, the countenance being pale, languid and vacant. In some instances confirmed chlorosis will be developed during the progress of the disease. It will be noticed that the child has no disposition to play or to take exercise, and does not desire to associate with others, but prefers rather to get where her infirmity will not be noticed; the sensitiveness in this respect being sometimes very great.

TREATMENT.—Various plans of treatment have been adopted, and many remedies used as specifics in this affection, and as is usual, we find that where the means are so abundant, they are not very efficient. We had much better adopt a rational plan of treatment, by correcting any dyscrasia, and getting a normal performance of the various functions of the body, rather than depend upon any one remedy, no matter how highly it is praised. Derangement of the digestive apparatus is usually prominent, and its correction is frequently followed by speedy recovery. Thus in many cases we will commence the treatment by the administration of a thorough emetic,

which may in some cases be repeated with advantage once or twice a week. This should be followed by a mild cathartic of podophyllin, leptandrin and extract of hyosciamus, in doses sufficient to move the bowels once or twice daily, until recovery is complete. Associated with this we would give a bitter tonic, as quinia, hydrastin, each one-half drachm; extract of nux vomica, two grains; extract of macrotys, in sufficient quantity; make thirty pills, and give one four times a day. A preparation of iron is almost always necessary, and we may use the prussiate, carbonate or the ammoniated tartrate, which has been very highly recommended. In all cases we employ the bath to sustain a normal action of the skin, and for its general influence. I have obtained better results from the salt water sponge bath, with brisk friction, especially of the entire length of the spine, than from any other means.

If the disease is associated with amenorrhœa, or irregularity of the menstrual function, this must be attended to. In some cases the emmenagogue pill of the dispensatory will prove useful, both as a cathartic and for its action on the uterus. The wild ginger is another agent that will prove useful in some of these cases. The macrotys, or cimicifuga, is a very valuable remedy, especially in cases where the patient complains of wandering pains in various parts of the body, or pain in the back and limbs. We sometimes associate it with valerian or scutellaria, and sometimes with the bitter tonics. The extract of Indian hemp has been employed with benefit, in doses of half a grain three times a day, and good results are said to have attended the administration of small doses of stramonium. The sulphate and oxide of zinc have been prescribed oftener, possibly, than any other agents, and we must believe, from the favorable reports given, that they have an action in these cases; these remedies may be given commencing with half grain doses four times a day, and gradually increased until five or ten grains are administered.

If there is tenderness on pressure over the spinal cord,

counter irritation will often prove very efficient, and the same will be the case when there is tenderness on pressure over the epigastrium. Electricity has been frequently resorted to in chorea, and the reports of its action differ materially. When passed through the limbs, it is not only useless, but sometimes positively injurious, but when applied to the back alone, it is almost always beneficial. The common electro-magnetic machine may be employed, the negative pole being applied to the sacrum, and the positive passed backward and forward over the spine. The better plan, however, is to insulate the patient, and by the old fashioned electric machine, charge the patient and withdraw the spark from the back. In one case, lately, I have employed the bromide of ammonium in addition to the tonic treatment first named, and seemingly with marked benefit, though one case no more demonstrates the curative action of a remedy, than that one swallow makes a summer.

Very much will depend upon the home management of the patient. All causes of irritation must be carefully avoided, and she should be encouraged to take suitable exercise, and try to control the involuntary movements. Out-door exercise, pleasant company, and something to constantly occupy the mind with, exerts an important influence, and it will sometimes be found that where the patient is allowed to have her own way, if not decidedly improper, she will get along better. In some cases the disease results in both male and female, from sexual excitation and onanism. This should be looked into, and if reasonable evidence exists, means should be employed to put a stop to it.

INFLAMMATION OF THE OVARIES.

Acute inflammation of the ovaries is not of very frequent occurrence, but we not unfrequently find a low form of inflammation, or severe irritation, with determination of blood, which gives rise to considerable disturbance.

In acute inflammation there is pain in the side, low down, and marked tenderness on pressure. There is also considerable uneasiness when the lady is on her feet; in fact in some cases she finds it impossible to get up. There may be a chill, and generally there is considerable fever for two or three days, with a dry skin, scanty urine, and constipated bowels.

In the milder cases, the lady feels a sensation of soreness in the side, which is deep-seated and increases upon pressure. In some cases a slight swelling of the ovary is felt; movement produces pain, and when she is much on her feet, there is a sensation of dragging and soreness in the part, which is very unpleasant.

TREATMENT.—In these cases it is well to free the bowels with a dose of podophyllin pills, and if there is fever, use the special sedatives, as has been heretofore recommended. Bathe the feet thoroughly in mustard and water, and drink freely of some warm diaphoretic infusion, as sage or ginger tea. Apply a mustard plaster to the part affected, and if the pain is severe, follow it with a hot hop fomentation.

OVARIAN DROPSY.

Sometimes the ovary becomes diseased, and, as the result, a cyst, or membranous sac, forms on it, containing fluid. There may be but one of these, or they may amount to dozens. It is supposed by the best authorities that they are developed from the graafian vesicles, which we have heretofore described as containing the human egg. They grow alike in persons of good health, and those who are feeble, in the unmarried as well as the married, and occur at all ages up to the time menstruation ceases, at the change of life.

When the growth commences, it is small, and gives but little trouble. It continually increases in size, sometimes very slowly, several years elapsing before it becomes so large as to produce difficulty; but in other cases it will

obtain an immense development in a few months. As it increases in size, it forms a swelling in the lower portion of the abdomen on one side, but at last it distends it to its full extent, and occupies all parts of it alike. So large do these growths become, that they will contain from five to ten gallons of fluid.

The general health suffers greatly when they become large. The appetite and digestion are impaired, the person loses flesh, and all the functions of the body are imperfectly performed. Still she may last for months, or even years, a burthen to herself and friends.

TREATMENT.—Medicine furnishes no remedy for this affection, no known remedy having the slightest influence upon it. It has been proposed to employ injection to stop or retard the growth, but it has not been attended with success. When the accumulation becomes so large as to render the breathing difficult, and give rise to other unpleasant symptoms, the water is drawn off by tapping. The only cure for the disease is the removal of the entire mass by a surgical operation. Formerly this was deemed very hazardous, but with the improvements that have been adopted recently, about three out of every four permanently recover. This is a very good result, as without the operation death is certain and not very far distant.

CANCER OF THE UTERUS.

Cancer, the most terrible of all maladies to which the human body is subject, very frequently attacks the uterus, It is of most frequent occurrence in the breast, next of the face, and next in frequency we find it attacking this organ. The previous health and habits of the woman seem to have but little to do in bringing it on, as it occurs alike in the healthy and those who are feeble. Several varieties of malignant disease are noticed in this region, all of which prove fatal if not arrested in the early stage.

The *corroding ulcer*, Fig. 22, is one form. It commences

with pains in the pelvis, a leucorrhœal discharge, and other symptoms of uterine disease. When the ulceration is

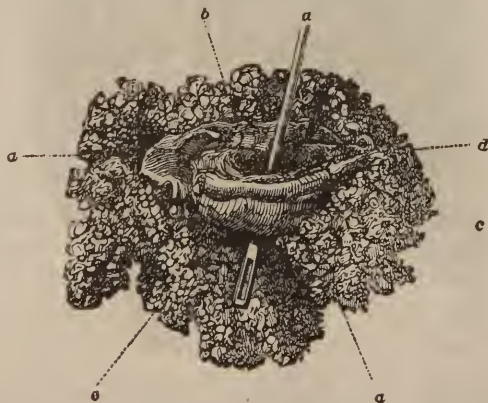
FIG. 22.



Corroding Ulcer of the Uterus.

fully developed there is a profuse discharge of a thin, watery, ichorous fluid, and frequent attacks of severe hemorrhage. With this the health of the patient rapidly gives way, and she becomes thin, sallow and anæmic.

FIG. 23.

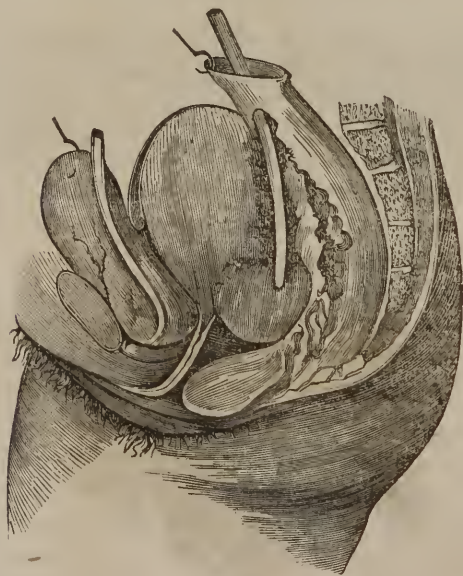


Cauliflower Excrescence.

The *cauliflower excrescence*, Fig. 23, is another form of the disease, though exhibiting an entirely different appearance, there being a red exuberant growth in place of ulceration. The patient's attention is first excited by a watery, in odorous discharge, in large quantity. In a few weeks this discharge becomes tinged with blood, and after a longer time profuse hemorrhage occurs. These exhaust the woman, she loses her appetite and strength, and finally succumbs to the exhausting disease.

True cancer commences as a hardening of the neck of the womb, or vagina adjacent, which feels nodulated or knotty. There is some leucorrhœal discharge, and a feeling of weight, uneasiness and tension in the pelvis. Occasionally there are sharp lancinating, or stinging pains, lasting but a few minutes, and occurring several times

FIG. 24.



Cancerous Ulceration of the Uterus, involving the Rectum and Bladder.

during the day. Though not absolutely painful, the female experiences an unpleasant sensation in that region most of the time, which gives her considerable annoyance.

The growth may slowly increase in size for months, or even years, giving rise to but few more symptoms than I have named. Finally ulceration commences, when the discharge becomes free, and is ichorous and fetid. Now the female experiences marked lancinating pains, which are sometimes so severe as to deprive her of rest. Hemorrhage also occurs occasionally, and increases the prostration. The appetite and digestion become impaired, she loses flesh, her skin becomes sallow, and finally she sinks from the exhausting discharges and the intensity of her sufferings. In many cases, the uterus is almost eaten up, the vagina, the rectum, and the bladder, are so invaded that the entire cavity of the pelvis seems to be but one sloughing sore, as seen in Fig. 24.

TREATMENT.—There are many cases of cancer of the womb, which can be cured if taken in the early stage. But if allowed to progress until the body of the organ and the vagina is invaded, and ulceration has commenced, there is no earthly hope for the sufferer. Bearing this in mind, never neglect these affections, but apply to some reputable physician who has made it a study, and ascertain what the difficulty is. Under no circumstances attempt to tamper with it yourself, or trust to cancer doctors.

DISPLACEMENT OF THE UTERUS.

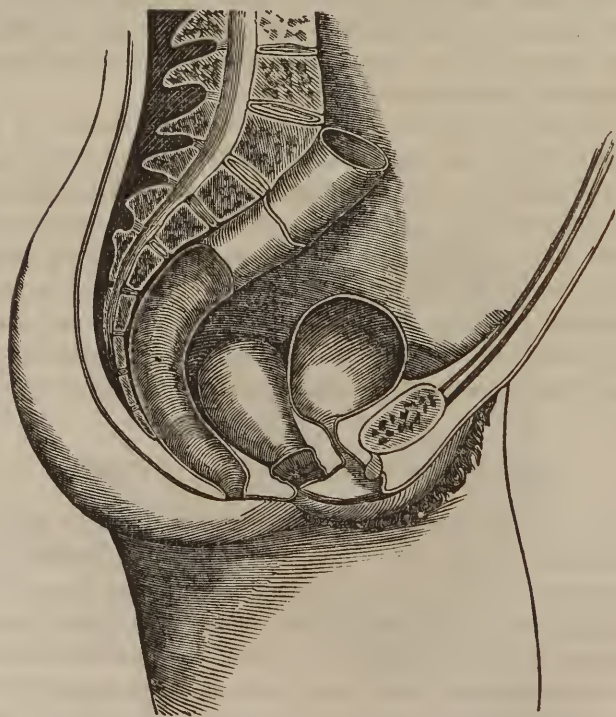
The womb, as we have already seen, is supported on the upper part of the vagina, and is freely moveable in all directions. As long as the vagina, and the muscles associated with it maintain their proper tone, there is little danger of displacement, but when they become relaxed from disease, the womb may be displaced in any direction. We recognize three forms of displacement, *prolapsus uteri*, or falling of the womb; *anteversion*, or a displacement of

the upper part of the womb forward ; and *retroversion*, or a turning of the upper part of the womb backward.

PROLAPSUS UTERI.

Falling of the womb, represented in Fig. 25, is the most frequent of these derangements, and may exist in a slight or in a very severe degree. It always results from some disease of the organs, most generally from relaxation of the vagina, produced by leucorrhœa. It may be caused by disease of the womb, which rendering it heavier, causes it to press down the tissues below ; or it may arise from

FIG. 25.



Falling of the Womb.

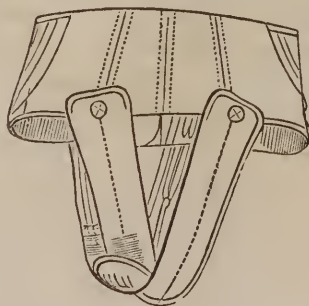
the increased size of the organ after childbirth, and the relaxation of these structures that is found at that time.

The symptoms in this disease vary very much in different cases. When it is but slight, unless caused by disease of the womb, the patient has a sensation of weight and dragging in the pelvis, which is increased by being long on the feet, or by walking. As it increases, these symptoms become more marked, there is weakness and pain in the back, sometimes pain in the legs, and other very disagreeable symptoms. The bowels are usually constipated, and the straining necessary to produce an evacuation increases the difficulty. The urinary organs are sometimes irritated, and there is more or less burning and unpleasant sensations when the urine is passing.

The effect of the disease on the general health varies in different cases. Some persons will make but little complaint, their general health being nearly as good as it was before the displacement, even in its worst forms. In others, the digestive organs sympathize with the uterine disease; there is disorder of the stomach, loss of appetite, dyspepsia, distension of the abdomen, headache, etc.

TREATMENT.—In the treatment of falling of the womb, the same means will have to be employed as in vaginal leucorrhœa, for in a majority of cases, this will be found

FIG. 26.



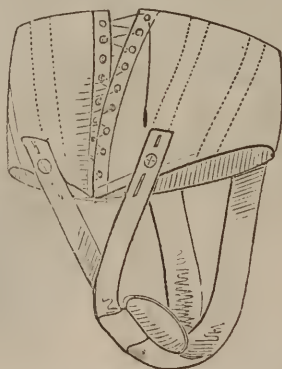
Perineal Supporter.

one of the principal troubles. If the general health is affected, suitable means will have to be employed to restore it, among which the bitter tonics and iron, with means to overcome the dyspepsia, will be prominent. If the womb is diseased, this will have to be removed before a permanent cure can be effected.

Among the most efficient means, the daily use of the salt-water sponge bath to the lower part of the body, pelvis, and thighs, will be found to yield good results. This bath should be accompanied with brisk friction, and kneading the muscles of the abdomen and those that close the outlet of the pelvis. This increases the strength of these parts, and renders them more able to hold the womb up.

For a temporary support, while the treatment is in progress, I prefer the perineal supporter, represented in Figs. 26 and 27. This consists of a well-fitted abdominal bandage or jacket, made of drilling or stout muslin, and furnished with whalebones to keep it from wrinkling: it is cut like a corset, lacing in front, and made so that it will give a constant and steady support to the lower and anterior portion of the abdomen. From this jacket ex-

FIG. 27.



Bandage and Pad.

tends two stout bands of the same material, or, if preferred, elastic suspenders may be used, which pass between the thighs, and button or buckle in front. Immediately under the perineum, where these straps cross, a perineal pad is attached, which passes upward between the vagina before and the bowel behind, and furnishes a constant and efficient support. This pad may be made about two inches square, and half an inch thick, and covered with oil cloth to protect it from the discharges. In my practice I use it altogether, and prefer it to any and all contrivances which have been recommended for the same purpose.

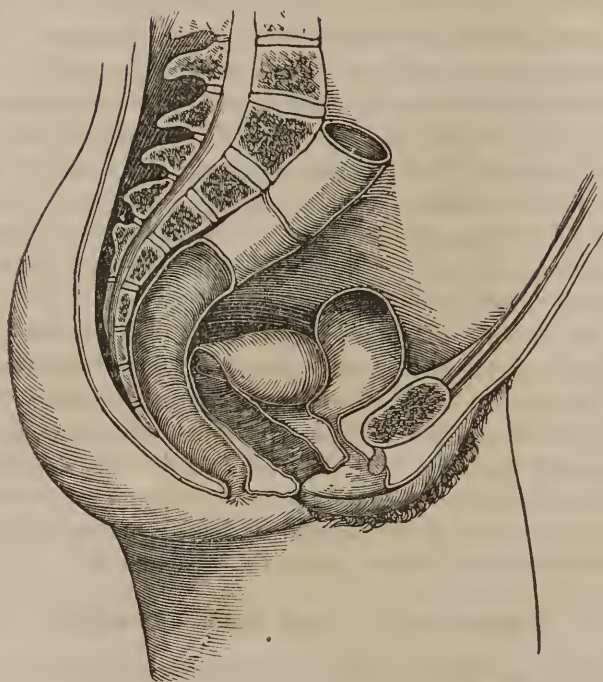
I do not like those supporters which are worn in the vagina, and termed *pessaries*, as these are never curative, and frequently cause more disease by their pressure than they advantage the patient. In some rare cases, for a temporary purpose, I use the India rubber bag, distended with air or water. Let it be borne in mind, that all these cases can be cured, if the patient has proper advice, and perseverance sufficient to pursue the treatment.

ANTEVERSION OF THE UTERUS.

In this case the womb is thrown forward and presses on the bladder, as seen in Fig. 28. In a slight degree it may continue for a long period of time, giving rise to unpleasant sensations in the pelvis, and to a great amount of irritation of the bladder, and pain and difficulty in passing water. In some cases chronic inflammation of the bladder sets in, and, in consequence, the patient suffers very much. In addition to these symptoms, will be those of disease of the womb, which almost always come on when it is long continued.

• In its severest form, it is generally of sudden occurrence, coming on from a sudden jolt or fall on the feet, when the bladder has been recently evacuated. In such cases, the person will feel an unpleasant sensation of weight and bearing down in the pelvis, with considerable pain and uneasiness. After a time a desire to evacuate

FIG. 28.

*Anteversion of the Uterus.*

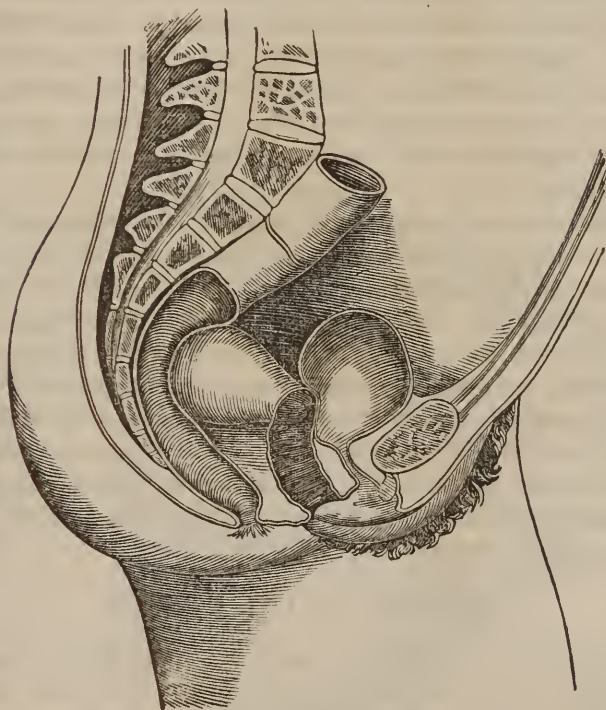
the bladder is manifest, but, on attempting it, no urine can be passed; or it is passed in drops, with much suffering, and medical attendance will have to be obtained immediately. It would be useless to describe the treatment, as it not unfrequently requires all the skill and efforts of the most experienced to rectify the difficulty.

RETROVERSION OF THE UTERUS.

This displacement is the opposite of anteversion, the upper portion of the womb being thrown backward against the rectum, as seen in Fig. 29. The disease usually comes on slowly, sometimes from too great distension of the bladder, which presses the womb backward, and it

is increased by accumulations of feces above it, and by straining to evacuate the bowels and bladder, both of which are difficult.

FIG. 29.

*Retroversion of the Uterus*

In retroversion, as in other morbid conditions and diseases of the womb, the accompanying sympathetic derangements or symptoms are, when well marked, more or less perfect imitations of the derangements attending pregnancy. Dyspeptic and hysterical symptoms are sometimes present, with local neuralgic pains in the breasts, or some portion of the back, or in the region of the pelvis. The displaced position of the womb often gives rise to mechanical irritations, and symptoms of the same kind as if the organ was morbidly enlarged.

Constipation and impeded passage of the stool are frequent results, caused by the compression of the bowel by the displaced womb. Occasionally the bowel is irritated, and there is discharged from time to time quantities of a mucus-like matter, resembling flux to some extent. The bladder frequently suffers, there being generally more or less difficulty in passing water; with burning or other unpleasant sensations, though sometimes she finds herself unable to hold her water, and it constantly dribbles away.

Symptoms of weight and tension, and bearing down in the region of the uterus and rectum, are of very frequent occurrence, and occasion a great amount of suffering. They are almost always increased by being much on the feet, by walking, or even by riding in a carriage, and they are especially marked at the monthly periods.

TREATMENT.—The treatment of these cases is quite difficult, and beyond domestic resources. A skillful physician should be consulted, who will first replace the prolapsed womb, and then advise such measures as will prevent its recurrence.

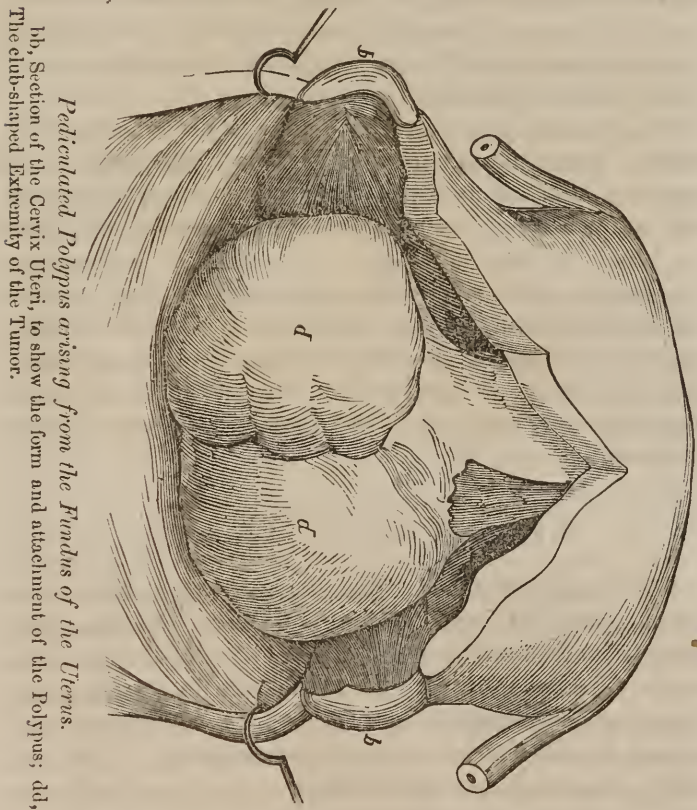
POLYPUS OF THE UTERUS.

SYMPTOMS.—In an early stage of the growth of these tumors, the symptoms are very obscure, but when more advanced they assume a formidable and dangerous character. In many instances, the first symptoms that will be noticed, are similar to those of the fibrous tumor, such as a feeling of weight in the pelvis, bearing down, pain in the loins, etc., which are especially aggravated during the menstrual periods. The menstrual function is usually first affected; it becomes more profuse and protracted, and occurs at irregular intervals. At the commencement of the growth there is usually more or less leucorrhœa; sometimes the discharge is principally the normal mucus of the parts, at others it is fetid and bloody. These symptoms may continue for a longer or shorter time, owing to

the growth of the polypus, and constitutional peculiarities of the patient.

As the growth advances in size, and in many cases where it is still very small, the hemorrhages become more frequent, and increased in quantity. The loss of blood is

FIG. 30.



Pediculated Polypus arising from the Fundus of the Uterus.
bb, Section of the Cervix Uteri, to show the form and attachment of the Polypus; dd, The club-shaped Extremity of the Tumor.

sometimes so profuse as to give the patient a blanched and bloodless appearance, and to greatly impair the general health. The appetite becomes impaired, the bowels relaxed, œdema of the extremities occurs, etc., marking an extreme state of debility from loss of blood. Another prominent symptom in polypus of the uterus is nausea

and frequent vomiting; this is probably caused, in part, by the loss of blood, and partly by the dragging down of the polypus and the expulsive efforts of the uterus.

The presence of a small polypus does not prevent conception, and even utero-gestation may go on to the full period. This, however, is not common, the irregularity of the menstrual function caused by the tumor generally proving a cause of sterility, and even should conception occur, an abortion will most frequently take place during some period of gestation.

The presence of a polypus sometimes proves a cause of difficult labor, the tumor being extruded before the child and still attached to the uterus, prevents its passage, and the tumor may require to be removed before the child can be born. It may likewise be the cause of subsequent danger, by preventing the contraction of the uterus, necessary to close the open mouths of the uterine vessels, and by this means give rise to dangerous, if not fatal flooding. Metritis has also been known to result, where a polypus was retained in the cavity of the uterus after delivery.

DISEASES OF THE BREASTS.

The female breast is a highly organized gland, abundantly supplied with nerves and blood vessels, and adapted to furnish the appropriate nutriment for the child in the form of milk. It is very delicate in its organization, and hence liable to disease, and is very closely connected to the uterine organs by sympathy. Thus we notice, that with the development of the womb and ovaries at puberty, the breasts are also developed, and with the changes in the condition of the uterus during pregnancy the breasts also sympathize. This intimate sympathy is best illustrated by the contraction of the womb after childbirth, on applying the child to the breast. Irritation of the breasts will also cause sexual excitement,

and occasionally the menstrual flow may be brought on in this way.

CARE OF THE BREASTS WHILE NURSING.—Though these sensitive glands should be well protected from cold or injury at all times, this becomes more necessary during nursing, as they now receive an abundant supply of blood, and are more liable to disease. The breasts should never be pressed with tight lacing, and especially with whale-bone in dresses or corsets. Many a woman may date the commencement of malignant disease, which will finally destroy her life, from these causes. They should likewise be well protected against the action of cold, and if there is tendency to *caking* of the breast, or *ague* in it, a couple of thicknesses of soft flannel may be constantly worn with advantage.

THE NIPPLE.—The nipple is the most sensitive part of the breast, and, as we have already seen, it occasionally causes a great amount of suffering from soreness when nursing. In a majority of cases, the skin of the nipple may be hardened prior to labor, by washing it for some weeks with a decoction of equal parts of yellow dock and dogwood. At other times the use of cold water will be all that is necessary. The treatment of sore nipples has been already given.

AGUE IN THE BREASTS.—Some mothers are very much annoyed with what is termed *ague* in the breast, whenever they are exposed to cold, from sudden changes of temperature, or even from washing the hands in cold water. The breasts become hard, full and painful; there are chilly sensations, followed by some fever, and various disagreeable feelings. The attacks sometimes recur frequently, and are a source of great annoyance.

At the time, we would direct that the feet be bathed in mustard and water, drinking a bowl of warm penny-royal tea, and taking a mild laxative to open the bowels. If the breasts are very painful have them gently rubbed with warm oil or lard, and the milk well drawn. There

is only one plan by which this condition can be avoided, and that is by the daily use of a cold sponge bath. Commence with tepid water, getting it cooler day by day, until it can be used cold. It is troublesome, and sometimes not very pleasant, but it will effectually prevent the person's taking cold, and is thus useful in other cases than this.

CAKING OF THE BREASTS.—The breasts not unfrequently become hard, in a portion of the gland, seeming as if there was a well defined tumor of the part. It is more or less painful, but always giving rise to a disagreeable, uneasy sensation. The entire breast is somewhat distended, and the child draws the milk with difficulty, and does not seem to remove it all. Sometimes this is the first symptom of inflammation.

Caking of the breasts is usually removed by gentle rubbings with warm lard, and covering them well with flannel, the milk being thoroughly drawn out. At other times the addition of camphor to lard increases its efficacy, especially if there is a very free flow of milk. Tincture of arnica one part, to lard three parts, makes a very efficient application.

INFLAMMATION OF THE BREASTS.—Inflammation of the breasts most usually results from cold, injury, or a failure to keep the milk well drawn out. Where the breasts have been once inflamed, especially if abscesses have formed in them, inflammation is very liable to recur after each labor. In these cases we sometimes find it necessary to dry the milk up in the affected breast immediately. This can almost always be done by frequently bathing it with warm lard and camphor.

Inflammation of the breast usually commences by the formation of a cake in it, which gradually increases in size, and becomes tender and painful. Several days thus elapse, in some cases, before the disease is fully developed. It gradually increases in size, becomes harder, and is the seat of a constant, deep-seated, aching pain. After a time,

it becomes unnaturally warm, there is too much blood sent to it, the milk is drawn with much difficulty, and is scanty, and there is great soreness, with more or less sharp lancinating pain. As it continues, the pain becomes so severe that she can not obtain rest either day or night; the general health is more or less affected, with usually some fever. Finally, suppuration occurs, the matter being situated in the structure of the gland, sometimes deep, at others near the surface. The pain is now very intense, usually throbbing, occasionally attended with chills. The matter gradually works its way to the surface, and discharges through one or more openings. From one to three weeks is usually occupied in the progress of the disease before the breast breaks, and there may be but one, or several abscesses.

TREATMENT.—The main object in treatment at first, is to check the inflammation, and prevent the formation of an abscess. Many plans have been recommended to accomplish this, among which I may name the following: When the hardness is first felt, apply the lard and camphor, or lard and arnica, as directed for caked breast, and keep it well covered with warm flannel. If cold has been taken, bathe the feet well, and drink a cup of warm ginger or sage tea, going to bed and covering up warmly. A mild cathartic should also be taken to open the bowels, as the citrate of magnesia, cream of tartar, or a seidlitz powder. If the body is still feverish, use the special sedatives as hereafter recommended.

If the means above named do not seem to answer, obtain from the nearest drug-store, equal parts of extract of belladonna and lard, mixed; spread it on soft cotton cloth as a plaster, and apply to the inflamed part. This should be changed three or four times in the course of twenty-four hours, and if the weather is cool, it should be warmed before applying to the breast. Be very careful when the child is nursing, that it does not get any of the plaster in its mouth, as it is poisonous. Instead of

this, take a single thickness of tobacco leaf, lay it on a flannel cloth and moisten it with warm water, and immediately apply to the breast. The Mayer's ointment, No. 85, is also an excellent remedy when the inflammation progresses slowly.

If these means do not arrest the progress of the disease, apply poultices to favor suppuration and have the matter discharged as soon as possible. Slippery elm, flaxseed, bread and milk and many other articles, form good poultices, and it makes but little difference which is chosen. If it is an object to draw it to a head speedily, I have found an application of wool saturated with lard to be the best application, though it is very painful.

If properly managed in the first stage, all the symptoms of inflammation will rapidly subside when the abscess opens, and in a few days it will heal up kindly. Sometimes from want of care the abscess does not heal up kindly, and numerous fistulous pipes keep discharging, and the breast continues hard, tender, and more or less painful. In the milder cases, if proper attention is paid to drawing the breast, the milk need not be lost; but when the inflammation is severe the milk will have to be dried up. In no case should the child be permitted to nurse the diseased breast, until it is entirely well.

TUMORS OF THE BREAST.—The breast is a very common seat of tumors, both benign and malignant, there being probably no structure of the body where they occur so frequently. This is no doubt owing to the delicacy of their structure, but more to their exposed position. It is impossible for the inexperienced to determine whether a tumor of the breast is malignant or not, and as very much depends upon ascertaining this fact before it has made much progress, a physician should be immediately consulted.

Many of these growths give rise to but little trouble until they become quite large, though usually there is an uncomfortable feeling of weight and uneasiness. We designate no less than eight different kinds of tumors,

some of which may be dispersed by appropriate treatment, while others will require an operation for their removal. If necessary, the earlier this is performed the better, as a growth the size of a common marble is much easier removed than one the size of a large apple, or as we find in some cases, the size of a child's head.

CANCER OF THE BREAST.—The breast is a very frequent seat of cancer, in fact it occurs here more frequently than in any other portion of the body. It may make its appearance at any age, and alike in the married and single, though we find it most frequently between the ages of thirty-five and fifty years. The cause of cancer is not known, and neither do we know why it should attack the breast more frequently than other part of the body. In all probability, it depends upon their more exposed condition, and the rapid and great changes which take place in its condition during nursing.

Cancer usually commences as a small, hard tumor, which is freely movable under the skin, though it may be deep seated or superficial. If care is used in its examination, a peculiar knotty hardness will be apparent, and is in many cases characteristic of the disease. There is but little suffering at first, and sometimes for days the woman will have forgotten that there is anything wrong with the breast. But occasionally there is a sharp stinging sensation as if something was within the breast that should be removed. Occasionally there are cases in which it is quite painful from the commencement.

It is observed to gradually increase in size, sometimes pretty rapidly, at others very slowly, and there is a corresponding increase in the unpleasant symptoms. When it has attained the size of a small hen's egg, it will be observed that the nipple is being drawn in; and when it has attained twice this size, the nipple will in a majority of cases, be level with the breast, or sometimes sunken in. This is one of the most characteristic features of cancer, and persons need have no doubt of the character of the

disease, when they observe this symptom, as it will not fail to be cancer in one out of one hundred cases.

It usually commences to be very troublesome about this time, though there are many cases in which the patient suffers very little. It has now become attached to the skin, and to some little extent to the structures below, and there is a bluish red discoloration of the surface over it. As it increases in size, its progress is more rapid. Ulceration commences at one or two points over the tumor, and exquisitely sharp, lancinating pains shoot from these through the mass. The discharge from these ulcers varies greatly in quantity and character, frequently being nothing but a bloody matter. The ulcer increases in size until it involves a considerable part of the surface of the breast. Its edges are hard and uneven, while its surface presents an unnaturally red and knotty appearance.

Sometimes a growth springs from the ulcerated surface, and projects some distance beyond the sound skin. It is very red, and looks very much like a bunch of strawberries, and bleeds upon slight pressure. With the commencement of ulceration, the glands under the arms become enlarged, and in a longer or shorter time the entire system is impregnated with the seeds of the disease.

Now the suffering becomes intense, sharp, lancinating pains pass through the breast, and into the shoulder and back. The sensations are sometimes compared to the gnawing of an animal, and truly, it resembles to some extent such destruction. The entire breast becomes involved in the disease, as well as the structures adjacent, and the person suffers a hundred deaths before death at last comes to her relief.

TREATMENT.—Cancer of the breast *can be cured*, if a proper treatment be adopted before the constitution has become affected. After it has formed attachments to the deep tissues, and the lymphatic glands are engorged with cancerous material, there is no hope. While still small, it is a very easy matter, to one who understands it, and in

many cases the cancerous mass can be removed without the slightest pain, and no danger. But if allowed to increase in size, the danger of its return is proportionately increased. In some cases the knife is used for its removal, but if depended on without the employment of proper remedies afterward, it is certain to fail. My experience goes to prove that it is occasionally the easiest method of getting rid of the bulk of a large cancer, but in all cases I leave an open sore, and apply remedies to trace out all the diseased structures afterward. Caustics should never be applied in these cases, as they rarely affect a cure, and, not unfrequently, cause the tumor to grow more rapidly, and cause adhesions to take place, that will prevent the proper means from being of benefit.

If this was a disease proper for domestic treatment, I would give the remedies here, but as it is not, and the remedies require great skill in their application, I would advise that a competent physician be selected. It is a matter of life or death with the sufferer, and it is well to use a sound discretion.

PART III.

CARE AND MANAGEMENT OF CHILDREN.

The young of the human being is the most helpless of all created things, and entirely dependent upon its parents for food, clothing and protection. While the young of animals soon have free locomotion, and all the instincts of self-preservation, the child possesses but the one faculty—that of taking its food when actually placed in its mouth. Thus relying entirely on the mother for that care and protection essential to its life, and having so delicate an organization that but slight changes produce injurious results, it becomes important to parents to know what experience teaches with regard to the proper management of children. It is true, that a love of offspring is implanted in the breast of every mother, and she desires to do all that will conduce to its comfort and welfare. Still, this instinct will not answer in the place of knowledge, and every woman should learn all that pertains to the care and management of children.

In this part I will quote freely from a most excellent little work by Mrs. Barwell, of Scotland, on the treatment of children. I do this because it is written by an educated mother to mothers, and will thus have more weight. My own portion will be that pertaining to the diseases and medical treatment of children.

**THE INFANT BEFORE AND IMMEDIATELY
AFTER BIRTH.**

The first and most important truth, on this subject, to be impressed on mothers, is, *that the constitution of their offspring depends on natural circumstances, many of which are under their own control.*

A child takes its general character from its parents. If these be healthy persons, the child will also, in all probability, be healthy, provided that no deranging circumstance shall take place before the birth of the infant. If, on the contrary, the parents are unhealthy, the child will also probably be unhealthy. These principles apply to the mental part of our organization, as well as to all the rest.

Supposing healthy parents, still the infant may prove very much the reverse, if the condition and circumstances of the mother during pregnancy be not favorable. It therefore becomes important to inquire what is the condition, and what are the circumstances of the mother during pregnancy, which are calculated to affect her progeny for good or evil?

The maintenance of her own health during this period is of the first importance, as even a woman usually healthy, may be in such a deranged state during pregnancy, as will operate greatly to the detriment of the infant. For the maintenance of health in ordinary circumstances, few people have any other guide than experience and their own share of good sense; and these are guides not to be despised. It is to be wished, however, that all whose circumstances will allow of it, should study the organization and functions of the human frame, as, without that knowledge, there can be no certain or consistent attention to the rules of health, while, with it, attention to those rules becomes comparatively simple.

A young pregnant woman, finding herself perhaps for the first time in her life called upon to pay particular atten-

tion to the laws of health, will probably experience some difficulty in subjecting herself to the guidance of those laws, because she has habits to overcome, and perhaps some pleasures to forego; but she will have the aid and stimulus of maternal love, which, from the moment she becomes conscious she is to be a mother, mysteriously but powerfully possesses her. This instinctive affection leads to good or to evil, according as the mind is informed or ignorant of the conditions which govern the health of the parent and child during pregnancy. If informed, the mental and physical powers are directed aright; if ignorant, the nervous sensibility prompts to a state of undefined fears, while physical evils are produced or increased by mistaken treatment.

That a female in this condition should maintain a serene mind, is, above all things, desirable. And for this end, it is in the very first place necessary that she should be taught to regard her condition in its true light, as one perfectly natural, and for which all fitting arrangements have been made by nature. The sickness, nausea, and disordered condition of stomach, which often attend pregnancy, and also the anticipation of the pains of labor, are apt to impress a different feeling. But with all such impressions, a right-minded woman will successfully contend, if she be truly informed on the subject. So far from pregnancy being a diseased condition of the system, it is one in which pre-existing disease is often overcome, at least temporarily (though the contrary is also sometimes the case), and during which epidemics are often resisted, when other persons not more susceptible fall before them. Nature, indeed, seems to have aimed at making the system unusually strong at this period, as if to favor as much as possible an object so important as the increase of the numbers of the species.

Nausea is most frequently experienced by women of a nervous and excitable temperament, or of what are called "strong feelings," and by those more particularly who

have little to occupy them. Those, also, who proceed upon the vulgar error of eating heartily, "in order to keep up their strength," are peculiarly liable to this distressing visitation. There is, however, a certain tendency to it in many cases, merely as a result of that increased excitement of the womb, which unavoidably takes place during pregnancy, in consequence of that organ requiring and receiving more blood at that period than at other times. In all cases, nausea may be regarded as a means provided by nature for keeping down the quantity of circulating fluids at a proper amount, and thereby preventing a fullness which might, in such circumstances, have fatal effects.

With respect to labor itself, an intelligent woman will find no difficulty, we think, in regarding it under the following considerations: It certainly is a process which, unless in very extraordinary circumstances, can not take place without considerable pain. Some, we are aware, believe the reverse. They allege that, if the females of the human race were to live in a perfectly natural manner, there would be no pain or difficulty in labor. That there should be any natural process from which pain is inseparable, seems also to them a kind of impeachment of Divine wisdom. We believe, nevertheless, that pain, in some measure, greater or less, is scarcely avoidable in the labor of almost any female creature, and that to acknowledge such being the case, is no detracton from Almighty goodness.

Contemplated under such considerations, the pain of labor will be looked forward to, we think, with firmness and without alarm. It will be regarded *only as pain*—a pain imposed with a design, upon the whole, beneficent—short in duration, and which there is much to alleviate—which, moreover, in the effect which it seems to have of the more endearing the infant which has been its innocent and unconscious cause, fully repays itself in the tenderest of feelings.

For the preservation of serenity of mind, an exemption from the severer cares of life is also desirable. In many cases this may be difficult of attainment, but it is nevertheless a point of so great importance, that every reasonable exertion and sacrifice should be made, in order to bring it about. We do not mean that a pregnant female should be set aside from ordinary duties, or that she should be allowed to spend her time in thoughtless langour. We only demand that she should be subjected to no treatment which will give her great excitement. Anxiety about the illness of a near relative—grief for his loss—the pain of severe worldly calamity—torment from the misconduct of individuals in whom she is interested—sudden frights, or excesses of joy—finally, those rarer distresses which a time of public danger occasions—such are the circumstances which are apt to have a bad effect on females about to become mothers. They also, as a necessary consequence, affect the being about to be brought into the world, producing in some instances a general weakness of constitution, in others only a certain damage of the mental organization. Many of the eccentricities which have caused the world most to wonder, or worked it the greatest woes, have been the consequence of very simple circumstances visiting pregnant females with undue excitement.

The diet of females during this period ought to be simple. When unenlightened on this subject, they are apt to fall into errors which may greatly affect their offspring. A pampering, indolent, and generally self-indulgent mode of life, is often practiced, and many think it necessary that every casual desire that can arise in an unregulated mind ought to be gratified. A sensible woman, sincerely anxious for the good of the being about to enter the world, will be anxious to avoid such errors.

The tendency to nausea and vomiting, already alluded to, may be interpreted as the voice of nature proclaiming that, in the condition of pregnancy, less instead of more food than usual is required. The perfection of the child

does not depend immediately on the quantity of nutriment taken by the mother; it depends on the supply of sound and healthy fluids, for which end not merely judicious nutriment, but a healthy action of the whole of the functions of the body is requisite. Over-eating, or eating too nicely, is inconsistent with that healthy action, and is therefore to be avoided. Food too highly concentrated, and of too stimulating a character is unsuitable, as also are gruel and weak broths, for these are not easy of digestion. The mother ought not to depart from her accustomed diet, whatever that may be, provided experience has shown that it is suitable for her constitution and habits of life. Animal food is not to be systematically avoided. Where the digestion is weak, the circulation languid, and the muscular frame small, flaccid and puny, this kind of food, of a tender fibre, taken in small quantities at a time and well masticated, will lighten present suffering and prevent future evil. The total want of this kind of food tends to make the milk weak and of bad quality. Farinaceous and vegetable food, with a moderate portion of animal food, and of diluting fluids, may be generally recommended. Stimulating liquors are beneficial in very few instances. We present all of these maxims on diet with some degree of hesitation, for almost every particular case requires a treatment more or less peculiar to itself.

Regular and gentle exercise should be taken every day in the open air if possible. This is one of the principal requisites for keeping up that healthy action of the system, on which the supply of sound fluids depends. When the mother pursues a contrary course, whether from indolence or from positive inability of body, her system necessarily becomes much relaxed, its tone is abated, and the child partakes of the same character. Regard must of course be paid to peculiarities in the general condition of the mother. If she be very weak, it may be injurious for her to take much exercise, or to begin to take it abruptly; but still the great importance of exercise to her health and that of her child

should be kept in view, and, if at all practicable or prudent, exercise should be indulged in. With the healthy, it is a duty which they will not with impunity neglect. It should be practiced from the first, and up to the very last. As one great inducement to it, they may be assured that by restricting an undue and undesirable growth of the child, it tends materially to lessen their distresses at a particularly trying moment.

The ordinary occupations of life should be as little as possible interrupted. It may be necessary from the condition of the expectant mother, that she should be kept very quiet; it often, indeed, happens that from peculiar circumstances, females are enjoined by their medical attendants to lie almost continually on a sofa. But these are unfortunate cases. Where there is a fair measure of health, to have both mind and body employed is decidedly useful, and a female should be glad when it is in her power to enjoy this advantage. Severe bodily labor is of course to be avoided, as too trying to the system, and apt to produce accidents, and great mental tasks are equally undesirable, as tending to create too much excitement. But the every-day matters of life, the domestic arrangements which make home respectable and attractive, the benevolent and affectionate sentiments exercised in kindness and service toward others, the charity which acts rather than gives, the daily walks enlivened by conversation or observation, the cultivation of the intellect by reading, the preparations for the maternal office—all these are suitable means of keeping mind and body in that state of moderate activity which is required, and such are ever at command. This moderate occupation is useful in two ways. It tends to sustain that cheerfulness and serenity of mind which have already been spoken of as so desirable during pregnancy. It is also useful as a means of keeping off and counteracting a certain tendency to nervous excitement which is sometimes experienced by pregnant females, and which manifests itself in irritability and impatience, des-

pondency, and listless indifference. When such excitement is first felt approaching, it should be met by a vigorous determination not to yield to it, and active employments will then be found extremely serviceable. Females often act otherwise, and under the notion that such nervous excitement being natural, it ought to be patiently submitted to, they resign themselves to it, and expect that others should treat it with charitable indulgence. But in reality, it may be successfully contended with in most instances, and it is the duty of every one thus to contend with it.

It may here be remarked, that minds being constituted differently, all do not find that the same duties and objects serve equally well for sustaining their cheerfulness and keeping off the tendency to nervous excitement. The exercise which is beneficial to one may be irksome to another; but the main object in all cases is the same, though reached by different paths. Worldly circumstances are also various; it is therefore impossible to lay down rules for the employment of mind and body, it is easier to point out what is to be avoided, namely, excess, whether it regards ease or exercise, food or sleep, and the frequenting places of public resort, and close private apartments where the air is heated and vitiated. In every situation of life there are trials of temper, alternations of hope and fear, joy and sorrow, pleasure and displeasure; to regulate these emotions, to restrain them within such bounds that they shall neither over excite nor exhaust the nervous energy, nor interrupt the healthy action of the bodily functions, is within the power of every human being, and is a discipline agreeing equally with the precepts of the moralist and the prescription of the physician.

As yet, we have only considered those circumstances which affect the human being before birth, we are now to treat of those which conduce to his weal after he has entered the world.

The child should be placed at the breast within from

twelve to eighteen hours after birth. When this is delayed longer, the breasts are apt to be distended with milk, and the act of suckling is then attended with pain and difficulty. In such circumstances, the overloaded vessels being imperfectly emptied, inflammation is excited, and milk abscess may ensue. The milk left too long in the breast, if afterward sucked, occasions pain and disordered bowels to the infant, or is rejected from its stomach. In the latter event, the nourishment is insufficient, and results seriously affecting the permanent health of the child may be experienced. It occasionally happens that the flow of milk in the first few days, is greater than the child can take. If it do not flow away, fomentations of warm water may be applied, which is a better remedy than rubbing the breasts with spirits; for they are rendered so tender by distension, that they easily bruise. When the abundance of milk is troublesome, the mother should drink little, and take opening medicine.

On recovering from confinement, and resuming her usual dress, there can not be too much caution in securing perfect liberty for the breasts. The waist of the dress should be loose and long. The low, stooping position in which a woman sits while suckling, encourages an enlargement of the abdomen, if not guarded against; and injury to the figure, and untidy appearance, have been urged as reasons why mothers should not also be nurses. Such consequences are by no means necessary. The dress may be as neatly arranged as at other times, and the figure has only to be protected, and such exercise taken as will keep down the tendency to enlargement of the abdomen. There can be no other permanent increase unfavorable to beauty or utility. It sometimes happens that the nipple is small, or turned into the breast; a new-born infant has scarcely sufficient strength to draw it: in such cases it saves much pain to have the breast drawn by another child of about six or eight weeks old. The mechanical means often adopted are very apt to cause sore

breasts. It is, however, desirable that the infant should get the first milk, as this has the effect of clearing the bowels of the meconium, or first evacuations, and generally supersedes the necessity of a purgative. A young mother is generally awkward in holding an infant; but a little fortitude and perseverance will overcome the difficulty.

Where there is a decided inability to suckle (which may usually be decided before delivery), and a wet-nurse is to be engaged, there are two or three points requiring attention. The nurse should be, as nearly as possible, of the same age as the mother, because there is a relation between the constitution of a mother and her newly born babe, and, the more nearly the hired nurse resembles the mother in constitutional peculiarities, the more suitable will she be for rearing that particular child. A hired nurse should also have been confined about the same time as the mother, because the milk has a different character at different stages of nursing, being thin at first, and gradually growing stronger, so that, if a newly born babe be put to the milk of a woman any considerable time confined, it gets too strong or heavy milk, and is thereby sensibly injured.

The diet of a person engaged in nursing should be nutritious, but not heavy. What agrees and disagrees in ordinary circumstances, will then have the same effect. Diet must also have reference to constitution. A person of full, robust habit, will require less nutriment, and will suckle better upon diluting drinks, such as tea, toast and water, gruel, etc., while a delicate person of languid circulation will need more animal food, milk, beer, perhaps ale or porter. Wine is not so desirable; it is stimulating rather than nutritious; though, mixed with water, it may in some cases agree better than beer.

The *quality* of the milk chiefly depends upon habits of mind and body; the *quantity* varies in different persons, in correspondence with age, constitution, etc. In some constitutions the food goes more into nourishment, and less

into milk, than in others. In those cases, the less food is required. In other constitutions the aliment goes more into milk and less into nourishment; and a woman so characterized requires to be comparatively well fed. It is necessary for a nurse who has a tendency to flatulency, to avoid viands apt to induce that ailment, not only on her own account, but that of her charge, for this and other disordered functions tell upon an infant immediately, through the medium of the milk. Where a nurse is actually affected by flatulency, her taking a little powdered ginger or carbonate of soda, makes her milk agree better with the digestive powers of the child.

A mother who is also a nurse, has a double claim upon her, and a double motive to stimulate her in the observance of the laws which govern health. The immediate welfare of herself is indissolubly united with that of her child; every transgression on her part inflicts suffering on her infant, who is the helpless victim of her errors. And not only so: unhealthy, ailing children, bring great afflictions upon a family. In the case of affluent persons, they bring disappointed hopes, wounded pride, and sorrowing affections. A father is naturally disposed to regard his offspring with pride, exultation, and hope; but can he do this when he sees ailing, fretful beings, incapable of enjoying or benefiting by the advantages which his abundance and affection procure? In the case of poor people, the sorrowing affections are aggravated by the expense, the household discomfort entailed by illness, and the prospect of the sickly creatures around being hereafter incapable of earning their maintenance at all, or of doing so under the pressure of bodily and mental suffering. The faults of the mother may inflict these disappointments and difficulties upon the father. Her responsibilities are great and numerous. Yet there fortunately is a present happiness connected with the maternal duty, arising out of mere instinct, which lightens the burden, beside a continual and increasing reward springing

from and experienced by the higher sentiments of her nature.

FOOD.

The milk of the mother is to be regarded as the most appropriate food which can be given to a newly born infant. Where a mother, therefore, has a sufficiency of milk, and is otherwise able to perform the duty, she is called upon by the voice of nature to undertake it. It is a duty which may be attended with some degree of inconvenience; but this is amply compensated in the delightful feelings which are developed in the course of the nursing period, and the consciousness of performing a duty of the greatest importance to one in whom she feels the deepest interest.

When the mother is unable to nurse, the next best course is to engage a substitute, selecting one as healthy, as near in age to the mother, and as nearly the same time confined, as may be obtained. It should be regarded as a sacred duty by parents to provide a wet-nurse, if their circumstances will at all permit, for by no other means can they be tolerably assured of the welfare of their child. In the next alternative of bringing up a child by the hand, or giving it cows' milk and soft food, there is danger of much physical evil. The truth is, no kind of food but the mother's milk, or that of a well chosen nurse, assimilates with the digestive organs of an infant in the first few months of its existence. The evil of the mere unsuitableness of other food is aggravated when it chances that too much is given. While a superabundance of milk produces no harm, from its so easily being discharged from the stomach, food can not be got up without straining, and without irritating the stomach. Children that are dry nursed vomit less frequently than those who are suckled; but this is no proof that the food agrees; digestion is difficult, the superabundant food ferments, becomes very acid, passes into the bowels in an improper state

irritates the mucous membrane, and occasions the loose, green, sour-smelling stools, indicative of what is termed gripes. It is a common practice to give an infant a purgative a few hours after its birth, and to feed it until the mother has milk for it. Both these practices are contrary to nature; the first milk causes a free, natural discharge from the bowels, very different from the effect of medicine, which irritates and enfeebles the alimentary canal, establishing disorders which carry off a delicate child, and cause a robust one much suffering. Whether an infant be wet or dry nursed, its stomach should be left at rest for several hours after birth; if there be crying and uneasiness, they are likely to arise from other causes beside hunger. The sudden change of situation, exposure to air, the dress with which it is necessarily encumbered, and the manner in which it is handled, are sufficient to account for uneasiness. Warmth, quiet and repose afford ample solacement for the first few hours of life.

When there is unusual delay in the flow of the mother's milk, or a difficulty in getting the child to suck, a small quantity of ass's or diluted cow's milk will save the infant from exhaustion; but on no account should farinaceous food (that is, food composed of any kind of flour from grain), be given. The greatest safety will be found in the breast; there are few situations where it would not be possible to find a mother willing and able to suckle the new-born infant until its natural food is ready. That this fluid is the proper aliment for an infant, is shown by its having no teeth, and by the muscles of the mouth and jaws being too feeble for mastication, while the structure of the whole frame is lymphatic, incapable of voluntary motion, and easily excited. If a child is to be brought up by the hand, cow's milk, skimmed, or diluted one-third with boiled water, and slightly sweetened, is the only nourishment that can be safely taken, unless ass's or goat's milk can be procured, these being more nearly allied to the milk of a woman. When we depart from the inten-

tions of nature, we always encounter difficulties. With some children, cow's milk will not agree at all, or only when mixed with oatmeal gruel; sometimes the latter alone suits best. Again, in cases of relaxed bowels (a common disorder with dry-nursed children), isinglass, highly baked flour, or arrow root, mixed very thin with milk, are the best diets; occasionally weak animal broths are most suitable. All irregularities are better counteracted by diet than by medicine. The application of a flannel bandage to the lower part of the body is judicious in bowel complaints. A warm bath soothes irritation and allays pain. The state of the bowels indicates the condition of the digestion. Green, watery, slimy, or sour-smelling motions are bad, as are streaky dark stools. Two or three motions in twenty-four hours are sufficient; less may be enough where there is no pain or symptom of disorder. Cold produces relaxation. The use of the warm bath is in most cases highly beneficial. The facility with which it is prepared for an infant, renders it an easy remedy; a washing tub, and a pailful of boiling water, will be sufficient when lowered to ninety-six or ninety-eight degrees Fahrenheit's thermometer. There are few disorders which a bath will not alleviate. There is an opinion that it exhausts. Like all other things, its use requires discretion. A very young infant should not remain in it more than six or eight minutes, and it should not go in daily. The head and loins should be supported by the hands of the nurse, so that the whole person may be at ease and entirely immersed, except the head and face; when very young, an infant is rarely alarmed by the water; but when there is intelligence, fear is often felt. A little ingenuity in floating paper boats, corks, etc., amuses and diverts apprehension; and, after a few trials, the bath becomes agreeable.

For the first five or six weeks, at least, the mother is usually able to support her infant from her breast, and it will be desirable to continue to do so for three or four

months. Food is sometimes required before that time; but the rule is, that children for the first three months are better suckled. At that period, skimmed cow's milk may be given safely, when the natural food is not sufficiently abundant. The suckling pot or bottle is the best means of feeding, for sucking exercises the muscles of the mouth and jaws, and promotes the flow of the saliva, and that admixture of it with the food which is necessary to digestion; while an infant feeding from the spoon only swallows. The form of the suckling vessel permits but a small quantity to enter the stomach at a time, and thus another necessary law is obeyed. Sucking is attended with healthy exertion and consequent fatigue, and is one of the few means of exercise intended for young infants. Care and cleanliness are important in using these bottles. The sponge or leather soon gets sour and hard, and it is then distressing to the mouth. After six months, a gradual approach to solid diet may be made by a slight addition of farinaceous food in the form of boiled or baked flour, arrow root, ground rice mixed very thin and smooth, bread or hard biscuits soaked or boiled, the water poured away, and the sop beaten till it is wholly free from lumps, when it may be mixed with milk till it is very thin and smooth, and slightly sweetened. Sugar often turns acid, and should be used sparingly. The first change of food sometimes disorders the system. Two or three days should be allowed for the experiment, and, if the diet does not agree, some other form of farinaceous food may be tried as likely to prove more suitable. Should all be found equally improper, weak chicken, veal, or calf's foot broth, beef tea freed from fat, and thickened with soft boiled rice or arrow root, may be tried. The great point is to begin by slow degrees, giving a small quantity of the thickened food once in the twenty-four hours, and that in the forenoon, in order that its effects may be observed, and the night's rest remain undisturbed. Food should always be given about the warmth of the milk as

it comes from the breast; when too hot, it weakens digestion, and is distressing to the child; and if too cold, it does not digest so quickly.

When infants are fed by the spoon, it is not unusual for the nurse to ascertain the warmth by putting every spoonful to her own mouth, a habit equally disagreeable and unnecessary. After feeding, the child should be raised up, when it will more easily get rid of the air which is generally introduced into the stomach during eating. Where there is much disposition to flatulency, an infant should be carefully watched, the accumulation of air occasioning what are called stoppages. If these occur in sleep, they may prove fatal to life, and even when the child is awake they are dangerous, as when affected by them it can not cry out, and its breath is for the time stopped. The practice of giving caraway seeds, aniseed, carminatives, or distilled waters of any kind, is decidedly pernicious. They irritate the coats of the stomach, and, though they may give temporary relief, they create future evil. They are frequently put into the food to make it sit easy on the stomach, but when food does not sit easy we may presume that it is of an improper kind, or given in too large quantities at a time, or too often. If medicine is at any time required, it should be given as medicine, and not with the food. It can not be too strongly urged, that as the disorders (there is a distinct difference between *disorders* and *diseases*) proceed from some mismanagement, they can not be permanently removed by medicine, but only by the adoption of good management. Continual recourse to medicine weakens and irritates the power of the adult; the effect upon the tender, excitable organs and soft frame of infancy is even more destructive to health.

Over-feeding and improper diet are the main causes of the ailments of children. During the first few weeks of life, infants endure none but physical evils, they are exempt from anxieties, from disappointments, from hopes

and fears ; but unfortunately their sorrows, pains, or anger, are always traced to hunger, and eating is adopted as the universal panacea. This goes on till the child is of an age to comprehend and believe that to eat and drink is the greatest happiness and the greatest good. There is no doubt that the easiest method of stopping crying is to stop the mouth, especially when the senses are not active enough to find pleasure from observation. The means of relief are then necessarily limited ; yet change of position, loosening the dress, giving the legs and thighs entire liberty, chafing them, gentle exercise by the nurse moving her knees from side to side while the child lies across them, or walking about the room, and pressing it to the bosom, are all of them expedients which may be easily resorted to, and which often have the desired effect. Rough jolting and patting on the back, provoke rather than allay pain.

It is difficult to lay down rules for the regulation of an infant's appetite, since this depends upon rapidity of digestion, which differs in different children. In two months the mother may pretty nearly ascertain how often her infant requires the breast, and it will greatly advance her own convenience and the child's comfort if something like regularity be established. Habit very soon asserts its influence—so soon, and so imperceptibly, that it is desirable to be governed by its power as soon as the mother is convalescent. If a child be brought up wholly at the breast, the mother must not be absent at the hour she will probably be wanted, for a crying, hungry child offers a great temptation to a servant to quiet it by food. Every three hours is the average number of times a child, from two to four months old, requires to suck. A good sleeper may, during the night, rest as long as six hours together, but regularity may be attained by night as well as by day. Suppose an infant to wake at seven in the morning, and to suck ; after washing and dressing it will take another meal and a long sleep, bringing it to noon, when it is

again refreshed, and, if the weather be warm, carried abroad, sleep usually follows upon going into the air, and three o'clock may have arrived before it again requires the breast. From this time until undressed for the night it should not be lulled to sleep, but if the child be much inclined for repose, it should not be prevented. It is desirable to give a child the habit of sleeping throughout the night. At six, preparations are made for bed; the undressing and washing produce a certain fatigue, and when the child has again sucked, it will probably fall asleep and remain in that condition four hours. It is a good plan to accustom an infant to suck just before the mother goes to bed, and this it will do even if asleep. Its linen should then be changed, and if it wake up, allowing it to stretch its limbs before the fire, rubbing its loins, thighs, legs and feet, give exercise and refreshment, and prepare for another long sleep. Between this and seven it will wake once or twice again, and require nourishment.

As the power of observation increases, and muscular strength induces exercise, an infant sleeps less by day, and more by night, it requires the breast less frequently, and takes more at a time, the digestive powers being more active, and all the functions stronger. If a child feeds as well as sucks, there should be a regular time for both. The time of waking in the morning, and the middle of the day are perhaps the most favorable periods, the stomach being then comparatively empty, and the digestive power brisk. Mothers may in these cases make arrangements suited to their convenience, without prejudice to the infant. Two circumstances govern the progress to solid and animal food—the appearance of the teeth, and the growth of muscular power. Mastication and exercise are necessary when strong nourishment is presented to the system. Medical men are of opinion that the time of weaning should be regulated by the appearance of the teeth; but in different children this period varies considerably. In the same family, one child has been known

to cut teeth before five months, another not till after a year. There may be circumstances rendering it desirable to wean, even if the teeth have not appeared. The health of the child, and the season (winter is a time of difficulty), will be considerations. The mother's health should also be taken into account. If the child be strong, and the mother weak, weaning becomes unavoidable; but if all goes well on both sides, the child should have every advantage, and not be weaned, upon the principle that six, eight, or ten months, are long enough, but for some good and sufficient reason connected with the circumstances of the mother. If her infant be strong and healthy, and likely, after seven or eight months, to thrive equally well upon food, and if the office of a nurse prevents the mother from giving the necessary care to equally important duties, she will be justified in weaning. Under any circumstances, the general principle must be kept in view, that the health of an infant depends mainly upon the nature of its diet; and if there be any reason to think that the loss of the breast will be attended with risk, the mother will gain nothing in time or diminution of care by weaning.

It is advised to avoid weaning in severe weather, and to do it gradually, giving the breast less frequently, and discontinuing it at night. The digestion thus gets accustomed to the change, and the temper is less tried; the milk diminishes in quantity, and the mother suffers less inconvenience. Another advantage of a gradual cessation is, that, should the infant lose its health, suckling may be resumed. Weaning has been considered a great trial to mother and child. The latter suffers when the privation is sudden and unprepared; but when it is gradual, the infant healthy, and the food agreeable, it will soon cease to care for the breast. The mother naturally regrets to relinquish so tender an office, and her feelings are the more distressed when she finds that she can not even be in the presence of her infant without giving it additional

pain. But it will be well that, at this time, she keeps out of its sight, if she be perfectly satisfied as to the trustworthiness of those to whom she commits it. If she can not rely upon another for attentive and rational nursing, her child had better be tantalised by the sight of her, than neglected or mismanaged. For herself, she will take some cooling purgative, and refrain from fluids and stimulating diet. The following application to the breasts will assist in drying up the milk: Three ounces compound soap liniment, three drachms laudanum, one drachm camphor liniment; or if this be too irritating, fomentations of warm water, or poppy heads and camomile flowers boiled together in water, give great relief. Pressure or tightness occasioned by the dress must be carefully guarded against. The distension of the milk vessels occasions great irritation and tenderness; a slight blow, pressure, or roughness in rubbing them, may produce an abscess. It is better to get rid of the milk by its natural absorption into the system, than to draw it artificially; for the latter method keeps up the action of the vessels. Exposure to cold is dangerous, the system being in an excited state.

The diet of a child, after weaning, must be regulated by the strength of the digestive powers, by the teeth, and by the muscular condition of the child. Upon the principle that diet should assimilate with the powers of the system, the gradual change from the soft lymphatic forms of infancy to the firmer condition of childhood, dictates a gradual change in the aliment. If a child thrives on farinaceous food, milk and light broth, there can be no need of change. Something depends upon growth. There are children whose rapid increase of stature, and incessant activity, produce a waste which calls not only for frequent supplies of food, but also for food of a more nourishing quality. With such, animal food once a day (always supposing the teeth are in a condition to masticate it), may be necessary; but if a high degree of exci-

tability, a violent temper, and impatience, prevail, nourishing food must be given with discrimination. The mother will ascertain whether these qualities are increased or diminished thereby, and regulate the diet accordingly. A lymphatic, fat, white looking child, whose mind and temper are sluggish and indifferent, should not be fed wholly upon fluid or soft diet; more concentrated food will probably correct the temperament. In all cases the state of the bowels, of the skin, and the temper, will indicate whether the food nourishes too much or too little. Fat is no positive criterion of health; a very active child, after three years of age, is rarely very fat, but the muscles may nevertheless be large; their size, compared with that of the bones, and with the age and growth, determines whether the child be properly nourished. Emaciation is a certain indication of imperfect nutrition—a consequence of over-feeding as much as under-feeding. If the digestion be over-tasked by quantity or quality, the chyle is vitiated, and nutrition insufficient, while, if the supply is not in proportion to waste and growth, there is a deficiency in the formation of all the tissues, the bones remain soft, the muscles flaccid and shrunken, the skin covered with eruptions, the nerves weak, yet so excitable that all impressions are painful, and a constant fretfulness or moping incapacity prevails. It has been ascertained that scrofula and consumption are produced both by over-feeding and want of sufficient nutriment.

A soft, clear, pliant skin, accompanies a healthy action of its functions. It is not transparent in all cases, because complexion makes a difference both in color and thickness. Its condition is better ascertained by its texture than by its hue. A dry, harsh, scurfy skin, indicates something wrong in the alimentary canal, to be corrected by the diet, or an inactive state of the skin itself, to be overcome by exercise and warm baths. The temper is a very sure index of health. Cheerfulness, mirth, and freedom from anxiety, are the peculiar priv-

ilege of early childhood; the past and the future are nothing, the present every thing. The absence or interruption of these sentiments denotes deranged health. It is true, that what is called a spoiled child, is troubled by bad temper; for where there is moral mismanagement, there will also be physical mismanagement. The petted child will have what it desires to eat and drink, will go to bed only when it pleases, will submit to no regulations, while the irritation to which it is continually subject from the contradictions it must encounter, and from its own unrestrained feelings, wears the nervous system, and exhausts the energy which is required for the healthy action of all the functions.

The general rules for diet after weaning, then, are these: Mild nourishing food given at regular intervals of time, the quality to be more animalised as the waste of the system is increased by growth and exercise; observation to be made of the effect of any new substance, such as fruit, meat, etc., that it may be discontinued if hurtful, and wholly abstained from (for a time) when found to be so. Seasoned dishes, fried and salted meats, pastry, uncooked vegetables, unripe fruits, wine and rich cake, to be altogether avoided; mastication to be insisted on, and no viand to be eaten in large quantities because it is liked, while nothing disagreeable should be forced upon the appetite. Whenever there is a disinclination for food, the feeling should be indulged, since it bespeaks a state of stomach in which food would be injurious. Tempting the appetite is physically pernicious, while morally it is the first step to needless sensual indulgence. Children require to eat more frequently than adults. A healthy, active child of two years, needs food every three or four hours, while awake, provided the stomach be not loaded; but continual eating allows no time for the repose which the digestive apparatus requires, and establishes a bad habit. Variety is also desirable; not that children should eat of several dishes at one meal, but they can not be fed

judiciously every day alike. Farinaceous food is capable of great variation. The animal food given to a child should be of a tender fiber, and eaten with a due proportion of salt, vegetables, and bread.

Every thing should be well dressed. Good cookery means the preparing of food in the *best* way. However simple the fare, it should be dressed with attention to cleanliness, kept free from grease, neither over nor under done, neither burned nor dried, the proportions mixed and flavored by rule, not by guess work. An ill-dressed dish is not only unpalatable, but indigestible. Bad cookery causes waste and discomfort. The dinner of a child, however simple, should, for both these reasons, be carefully prepared. Disagreeable food is tossed about on the plate and spoiled, and thus children learn to be wasteful and indifferent to the true value of food. They may not perceive its indigestible properties by their taste; but a fit of sickness or fretfulness is no unfrequent consequence of an ill-dressed meal. There is a natural perception of good and bad food, intended to save the stomach and the system from injury, quite as much as to insure a reasonable gratification from eating. The sense of taste may be trained to discriminate between what is wholesome and unwholesome in cookery, yet no undue love of eating inculcated.

We would recommend bread and milk, varied by tea and coffee, diluted with milk, as a good breakfast and supper. New bread is decidedly unwholesome; it swells in the stomach, causing distension and oppression. Sweetmeats and confections, when habitually eaten, turn acid upon the stomach, and destroy the appetite for plain food. But, given occasionally in moderate quantities, and of a good quality, they are a harmless indulgence of the palate, and may be made the innocent means of promoting amusement, and even intelligence. Young children are delighted to play with sugar-plums, and the variety of their forms and colors contributes to their amusement.

When the gratification of eating has not been encouraged as a chief source of delight, they will be as much sought for the pastime they afford, as the pleasure of appetite; they should not be given as incentives or rewards.

In training the very young, it is to be remembered that natural inclinations and impulses are evil only in their abuse, and that the desire for food, like all other desires, is intended to be a source of reasonable gratification. Eating is made pleasurable, because it is necessary to life. During infancy, the most ready means of giving and obtaining quiet, is food; a constant habit of eating, and looking to it for comfort, is one of the earliest impressions an infant receives. A child evinces an anxiety for any viands it may see, and this desire is laid hold of as a bribe or a reward. Eating thus becomes the chief aim and object; a child learns to eat too much and too often, is satisfied with mere animal gratification, and is most attached to those who pamper him the most. This is the abuse of a natural propensity, and the first step to sensuality. But if an infant be fed only when *hungry*, instead of when *uneasy*, and as it grows older, eats upon the same principle, with such habitual regard to neatness, order and good cookery, as shall accustom it to discriminate between what is fit and what is unfit, wholesome and unwholesome, there will be no undue value attached to food.

SLEEP.

All young animals sleep much. The child partakes of this instinct so fully, that there is no necessity to promote it, but only to prevent its disturbance. Physical comfort is all that is needed; and this is to be obtained by whatever secures health—namely, proper diet, warmth, cleanliness, and the fatigue which follows upon the exercise proper to infancy. During the first few weeks of life, the sense of hearing is so dull that noise does not disturb. Sudden noises, however, are sometimes distressing, occa-

sioning a weakness of the nervous system. But the continuous sounds produced by talking, the noises of the street, or the voices and sports of other children, seldom rouse infants in the first month or six weeks, and it saves much trouble if they become accustomed to them. Sleeping in the arms, or on the lap, is, for every reason, to be avoided; no child accustomed to this indulgence will rest long in its bed; neither ought they to be lulled to sleep; they may be early habituated to be put into bed awake, and so left, with the necessary caution of watchfulness.

Although it is not practicable to adhere strictly to rules at first, there should always be an endeavor to form good habits, and this from the beginning—those which relate to sleep should be established while the disposition for repose is strongest. On laying an infant down, it should be ascertained that the feet, hands and face, are comfortably warm, that every part of the body is supported, and the limbs uncramped; the head and shoulders being raised a little by the pillow, sloping gradually to the bed. Blankets are better than sheets. The covering should be so arranged that, while there is sufficient space to breathe freely, the face is kept warm. It is better not to take up a child the instant it wakes (particularly if it have not been long asleep), nor if it cries after being laid down. Change of posture, gentle rocking or slight patting on the back, should be tried. If these fail, it should be taken out of bed and quieted in the arms. Change of linen may be necessary; in short, patience, perseverance and ingenuity, should be put in practice, with a view to produce comfort without entailing bad habits.

In rearing children, it is well to bear in mind that present evils ought never to be overcome by wrong means. It is best that infants should lie alone, for the air of a bed in which one or more grown-up persons are sleeping, becomes impure, the child imbibes the perspiration produced by sleep, and is in danger of being overlaid—an accident by no means uncommon. Children, lying alone,

sometimes become cold in the course of the night, and it may then be necessary, in order to restore warmth, to take them into bed; but when warmth has been restored, they should be again put into their own cot or crib. It is difficult to overcome that natural instinct which leads a child to lie at the breast; but they sleep alone in the day for hours at a time, and may therefore be trained to do so at night. Darkness is favorable to repose, and it has its influence upon the young, although not at the beginning of life. The object, then, is to cultivate a habit of sleeping throughout the night. Mothers must expect their rest to be disturbed until the exercise and fatigue of the day increase the necessity and the desire for night sleep. Refreshment and change of linen are needful at night, and these should be given very quietly; no amusement should be offered, or wakefulness will be encouraged, and a child will regularly rouse itself for a game of play.

Every mother will remember that she has duties as a wife and the mistress of a household, and that in providing for the comfort of her child she must not sacrifice that of her husband and the rest of the family. A wakeful, fretful child, is a trial to patience, and disturbed rest is hard to bear. Every arrangement that circumstances permit, that can prevent this infliction, ought to be made and adhered to. After the first three or four months, if suckled when the mother retires to rest, as already recommended, the child will wake but once more, provided the management be judicious. A child should never be kept awake when fatigued, under the idea that it will rest better at night. Over-fatigue produces general irritability, pain in the limbs, fretfulness, and restlessness. For this reason, however apparently disinclined, when the fixed hour arrives, there should be no delay about preparing for bed, and this practice ought to be maintained during childhood as well as infancy. The habit of sleeping in the day is of great service, even during the first four years, and longer where there is delicacy of constitution or great

activity. Sleep is the only means of giving rest to the system of a child; in health, there is no repose except during sleep. In warm weather, it is very acceptable to active children of five or six, and frequently relieves them from a weariness which assumes the appearance of indisposition, or takes the form of ill temper and disobedience. An hour's nap will be found a safer physical and moral remedy, than a dose of medicine, or punishment.

CLOTHING.

Warmth is essential to the health of a new-born infant, and this is chiefly to be obtained through the medium of clothing, for in the first stage of infancy there is no muscular exercise. What renders warmth by artificial means so necessary, is the fact that infants, having a languid circulation, produce little heat naturally, and easily part with what they do produce; for which reasons they are liable to suffer far more from exposure than adults. A certain degree of warmth is essential to the performance of all the functions, and protection to the skin assists materially in maintaining this warmth, which should be sufficient to keep up the *insensible* perspiration, yet not so high as to produce continual *sensible* perspiration. The latter state relaxes the system, and renders it liable to be affected by cold draughts or changes in the weather, while it exhausts the strength, and, by increasing the action of the blood on the surface, deprives other organs of their necessary quantity. Clothing, therefore, must be regulated by age and by the season. The sudden change in the situation of a new-born infant calls for great care in the protection of the skin. This should be entirely covered for at least the first month; even the face and hands should be but gradually exposed. Lightness, as well as warmth, is requisite in all articles of clothing. Flannel and muslin possess these more than any other material. But flannel, even of the finest texture, may be too irri-

tating if worn next the skin, and it is desirable to give the infant a shirt of fine linen or cotton under the flannel to protect the cuticle. Another reason for the use of linen or cotton next the skin, is, that flannel can not be washed often without injury to its texture; and there is also danger that, as it does not show the dirt so quickly, it may be continued to be worn too long. Linen and cotton take little harm from frequent washing, and are so much cheaper than flannel, that a larger stock may be provided for the same expense. At no season can flannel be dispensed with, though in hot weather it should be thinner than in cold.

Looseness is another requisite in an infant's dress; there should be a free circulation of air between the skin and the clothes, as well as a slight friction upon the surface. All confinement distresses, and, when it amounts to tightness, it may occasion deformity, before the evil is suspected. Full room should be allowed for the increase which is continually and rapidly going on. For this reason, every part should fasten with strings; and in tying these strings the greatest care should be taken not to draw them too tight. It is a good precaution, after every string has been tied, particularly those under the chin and round the waist, to put in the finger, to ascertain that it is not too tight. In comparison with strings, buttons and hooks and eyes are not to be commended; they have but one advantage, that of putting it out of the power of a hasty or negligent nurse to fix the dress too tight, as may be the case with strings. It is necessary, frequently, to ascertain whether a child has outgrown its clothes. Growth is so rapid during the first two years, that a few weeks will make enough of difference in the relative size to produce pressure or restraint; clothes, therefore, should always be made so as easily to let out or enlarge, particularly round the waist, throat, and arm-holes, and across the chest and back.

It must ever be kept in mind, in regard to clothing,

as well as other circumstances in the economy of an infant, that the babe can itself give no explanation of the inconveniencies which it suffers. Bearing this in mind, and remembering how continually adults are annoyed by trifles which they have the perception to discover, and the ability to remove, it will readily be acknowledged that nothing is too insignificant for the constant and regular attention of a mother. Articles of dress contract, or otherwise lose their shape; a ruck forms, a hook bends, or a button turns and presses upon the flesh. Any one of these accidents occasions pain, and frets the temper of an infant.

The more easily the dress can be put on and off, the better. There should be no other fashion than what is dictated by convenience and comfort. The fashion of long-clothes (such, for instance, as measure a yard or more in the skirt), leads to needless expense, both in material and in washing, beside encumbering and overweighting the child. There need be no more length than is necessary to cover the feet, so that the cold will not draw underneath the clothes, and to conceal the under-clothing. The change observable in a child when the long-clothes are laid aside, sufficiently proves that the limbs have been confined and activity restrained. The frequent dressing and undressing which the use of ornamental attire necessarily entails, irritates so much, that the slightest sign of changing the apparel is a signal for crying, and a habit of fretfulness, during dressing, is formed, unfavorable to the tempers of both child and nurse. Loose gowns, fastening in front, are therefore preferable to frocks (for the first two months), however less elegant or fashionable. All unnecessary folds should be avoided, because they may press painfully upon the muscles or bones; and the materials should be of a soft, yielding nature. Harsh seams and hems, or rough tapes, especially where coming in contact with the skin, will be avoided by the skillful seamstress. Where pecuniary means are not abundant, the

mother, in making her baby linen, should remember that quantity is more important than quality, and that cleanliness can scarcely be observed where the stock of clothing is scanty.

One of the most important parts of an infant's clothing is a band to support the abdomen, familiarly called the belly-band. This should be made of soft flannel or muslin, that is to say, of material having some elasticity. It is intended to give support to the abdomen, especially to the navel; and it protects the internal covering of the intestines from any sudden distension. The umbilical cord is usually divided at birth about three inches from the abdomen of the infant, close to which it is securely tied, or the child will bleed to death. The final separation of the remaining portion of the cord is the work of nature, and takes place at various periods, sometimes in five days, or even less, sometimes not till the fifteenth day. The child is more comfortable when this is over; the unpleasant smell alone, which of course attends the decay of the part, is distressing; but there is always a good deal of tenderness, which sometimes amounts to ulceration and pain. In ordinary cases, as soon as the separation has taken place, a split raisin and a piece of singed linen should be applied to the part, and changed daily.

It occasionally happens that after a few weeks the navel starts; in such a case, a common ball of sewing cotton, half used, so that what remains is soft and yielding, should be laid upon the navel, and confined by strips of strapping-plaster placed crosswise. If anything more serious appear, such as redness, ulceration, discharge, etc., medical advice is immediately necessary. The vessels of the umbilical cord pass through the abdomen, making a passage which for the most part closes quickly and soundly after the separation of the cord; but unusual size in the opening, indisposition to close, or screaming, straining, sneezing, or any sudden violent effort, may interrupt the natural process, and force the intestines through the open-

ing. A steady protection, which shall gently resist these efforts yet not compress the cavity of the abdomen so as to obstruct the healthy action of the viscera, is required. The band affords this protection. In putting it on, it must be remembered that there is a distinction between support and pressure, the former is indispensable, the latter dangerous. If the cavity of the abdomen be diminished, its contents are compressed, and when any action takes place that strains the parts, there is no room for the necessary distension, and the weakest give way. The action of the bowels is impeded by compression, occasioning pain and constipation. Medical writers dwell upon the importance of the band, and decide that rupture is frequently the consequence of neglect or ignorance in regulating its use. It requires to be taken off and rearranged morning and night, and a clean one put on every other day, as it gets rucked, and so unfitted for use. It is often wetted, and is then likely to create pain and disturbance of the bowels, for which reason the same should not be worn both day and night. With some children the band is necessary for many months; when it is discontinued, the stay or waistcoat, usually worn as a sort of support to the rest of the clothing, should reach two inches below the navel; it prevents an enlargement of the abdomen, and sustains the child in its attempt to sit up.

The custom of keeping the head warm is gradually disappearing. The bones of the skull are not all united at birth; the parietal bones are divided, and the soft matter of the brain on the top of the head is perceptible to the touch. This opening was supposed to give a liability to cold, and the head was kept very hot; an injurious practice, increasing the action of the blood-vessels of the head to a dangerous extent, and impeding the junction of the bones. When a child is to be carried about the house, however securely it may be clothed, the cold draughts which prevail even in mild weather, should be guarded against by the addition of a light handkerchief or shawl. The

disorders arising from checked perspiration will thus be avoided. On the other hand, a child should never be presented naked too near a fire, as a scorching heat injures the texture of the skin and deranges its functions. On bringing an infant near a fire on any occasion, it may be well to screen its face and hands, in order to protect it from this evil.

There is little doubt that the eruptions to which the infants of the poor are subject, chiefly arise from want of cleanliness and warmth. In this country, where changes of temperature are sudden, and continual judicious clothing is the only safeguard, summer apparel can not be safely adopted and laid aside at a given period, nor can the same dress be always worn at noon and in the evening. However warm the clothing, infants should not be carried abroad in cold weather, their lungs can not bear a low temperature, and there is no exercise to keep the blood equally distributed. Where ventilation is attended to, no other change of air is wanted but what may be obtained by moving from room to room. An infant usually falls asleep when carried abroad; cold increases the disposition to do so, and renders it dangerous, while no good can be derived from the external air, since common prudence dictates that the whole person must be completely enveloped. If carried about a well ventilated room, at a moderate temperature, the child breathes freely and without risk. No child can be taken into the open air in very cold weather with safety, until it is able to take so much exercise as shall keep the blood at the surface. Before this period, the quantity of necessary clothing impedes activity. This, with the state of the air, benumbs the limbs; the blood is driven from the surface, and loads the lungs, stomach and brain, etc., the child returns home, is brought suddenly into a room with a fire, and probably close to the grate, for the sake of restoring warmth; violent reaction follows; the harmony of the system is disturbed, and the functions sustain at least temporary in-

jury. The daily repetition of the disturbance tries the strongest constitutions severely, and, where there is predisposition to disease, active disorders follow. How much better to put a child into a swing, to toss him about, encourage him to use his voice, throw a ball along the floor and creep or run after it, all of which, and much more, may be done in a room properly warmed and ventilated. By such means mental and bodily energy is kept up; the blood is equally distributed; there is neither stagnation nor over-action; fatigue follows upon the exercise, and then comes healthful repose, instead of the torpor which succeeds the combined effects of cold and inactivity.

When the period of infancy has passed, the clothing must still be attended to; if insufficient, children creep to the fire, and are very unwilling to face the cold or to exert themselves; if properly clad, weather seems to make little difference to them. When a child can run alone, and express its wants and wishes by signs or sounds, it should (in cold weather especially) wear loose drawers; they may be cut so as to be no impediment to activity or cleanly habits; if the lower part of the body and the loins are exposed to cold, weakness of the urinary organs is often induced, very distressing and difficult to cure. The warmth of a pair of drawers more than equals that of two petticoats, so that their adoption need cause no additional expense.

The care of the feet is for many reasons desirable. The practice of keeping them uncovered is not to be recommended. There is danger of laceration from the many hard and sharp substances lying on the ground, and exposure is not favorable to general health. Chilblains are frequent with those whose feet are exposed in cold weather. The only advantage gained is freedom of gait; but this is an advantage which the wearing of shoes ought not necessarily to deprive us of. If shoes were made with a due regard to the shape of the feet, and a liberal consideration of other circumstances, no harm would ensue.

It is to be observed, that the foot in its natural condition, as to be seen in a nursing baby, expands regularly from the heel to the situation of the smallest toe from which point it contracts in an oblique direction toward the great toe. Shoes are not made in this form, but, after expanding to a point a little short of the smallest toe, they contract on both sides equally, thus crushing the outer toes toward the center.

It is also to be observed, that the sole is naturally formed on a perfect level from heel to toe. Shoes, however, are formed with an inequality of from half an inch to a whole inch, or even more (we allude to grown-up persons), between the heel and the front of the foot. Thus, the body is thrown forward from a strong point, the heel, to a weak point, the toes; the limbs are prevented from ever keeping a straight position, and the whole figure and walk are deranged. If we were to reflect for a moment on the exquisite adaptations of all things in nature, we should instantly see the absurdity of this conduct; if there had been any advantage in making the heel somewhat higher than the front of the foot, would nature, which has made every thing so nicely suitable, have failed to fashion the foot accordingly? Perhaps it is not to be expected that, either for children or adults, shoes without some elevation behind are to be adopted; but it may at least be said, that the lower the heel in all cases, the shoe will be the better. Shoes should neither be too roomy nor too tight, though the latter is the worse fault. The unavoidable results are corns, bunions, and distorted and turned-in toes, all of them evils of no small magnitude. When we are thus affected, free motion is impeded; the foot, instead of being placed firmly on the ground, is set down in any way that will best avoid pain; the whole person droops, the chest is contracted, and, perhaps, worst of all, the temper is rendered fretful. A mother, sincerely anxious for the welfare of her children, will cause their shoes to be made of a proper shape and consistence, to allow of perfect freedom.

When an infant is to make its first advance from woolen socks, the best plan is to cause the shape of the sole of the foot when standing to be traced, and the sole of the shoe to be made from the outline.

On the general subject of protection from cold, some remarks may here be made. There is an opinion that children should be made hardy from the first, and that it is therefore proper to plunge them into cold baths, and otherwise expose them to rigors which are obviously disagreeable to them. The practices of savage nations are cited in support of these opinions, but no attempt has ever been made to show that they are supported by any philosophical principle. When the practice of a savage nation is cited, we should guard against mistaking a peculiarity of their constitution for a general principle. It is now known that the nations in question do not possess nearly the same amount of nervous sensibility as the European races, and that this is the true cause of their enduring so many tortures uncomplainingly at the stake. What their infants may not be affected by, may greatly injure the comparatively tender structure of an European infant. There are certainly differences of the same nature among infants in our own country, and some of these might be little the worse of the rigorous treatment prescribed. But there can be no doubt that, as a general principle, infants require warmth, and ought not to be unnecessarily exposed. In them the circulation is languid, consequently little heat is generated in their bodies naturally. Without being kept warm, there can be no healthy action of the functions in their case; and without a healthy action of the functions, the sound formation of the various parts of the frame will be obstructed. By the contrary treatment, the foundations of glandular and pulmonary disease are often laid. Infants, therefore, should be sufficiently, though of course not cumbrously clad. In reply to the argument that the children of the poor are necessarily exposed, and have the best possible

health, it can only be said they live *in spite* of the exposure, not in consequence of it; those who are accustomed to visit the poor testify to the comparative sickly condition of the children, while the bills of mortality show that the large proportion of deaths are those of young children; and the observations of the best informed attest the fact that much suffering, great increase of disease and mortality are the consequences of injudicious exposure to cold.

WASHING AND DRESSING.

For the health and comfort of an infant, washing is an important requisite. It should be performed every morning and evening, and not in a slovenly, but in a complete though gentle manner. The physiological reasons for such frequent ablutions are these: The pores of the skin convey superabundant matter from the system, and that matter is apt to remain upon the skin so as to clog up the pores, and prevent them from performing their functions, unless it be washed off. The pores also act as absorbents, and this function likewise is impeded when the skin is not clean. In the case of an infant, washing is necessary, in a more particular manner, for the removal of impurities, the contact of which is unfavorable for health. For reasons which have been adduced under the head "Clothing," the water in which infants are to be washed should be warmed. Cold water is further objectionable as tending to drive the blood inward, and over-stimulate the organs, the unavoidable consequence of which is disorder, and often death. For the same reason, when the business of bathing infants is to be performed, great care should be taken to prevent draughts of cold air from coming upon them. They can only be safely undressed beside a fire for the first four months.

A new-born infant is covered with a pasty, greasy substance, which must be removed, otherwise it will irritate and excoriate the skin, and occasion a disagreeable smell. Soap and fine flannel, or sponge, are the best applications;

every fold of the skin, the joints, armpits, etc., must be carefully examined and washed. It is by no means uncommon to rub a new-born babe with spirits, to prevent its taking cold after washing; but the stimulus thus given to the skin is injurious, and must be painful, while the rapid evaporation occasioned by the application of spirits, tends to produce instead of to prevent cold.

On preparing for dressing and washing, every necessary article should be near at hand; it is a sign of mismanagement when a nurse has to rise to fetch any thing. The *horse*, or screen, with the clean linen conveniently placed, will keep off draughts. The basket, basin, soap, sponge and towel, should be laid within reach, and in such order that there can be no confusion, and that the clothes shall not fall into the water, nor the wet sponge and towel find their way into the basket. The nurse, being thus prepared, with the addition of a flannel apron and a low chair, strips the infant, and having washed its head with soap, rubs it dry. The face, throat, chest, arms and hands, are then successively sponged as plentifully as the child can bear (soap is not always required), and tenderly but thoroughly wiped. The infant is turned over, and the back, loins and legs are abundantly covered with water; the left hand holding the child, its legs hanging over the knee, so that the water flows from them into the basin. The thighs, groins, etc., require great attention both in washing and wiping. The corner of the apron should then be turned up, so that there is a dry surface for the child to rest on, while it is carefully wiped. The rolls of fat and creases in the neck, arms and thighs, the bend of the arms, hamstrings, and the ears, must be thoroughly washed and dried. As the friction between the parts increases the perspiration and the liability to excoriation, they should, after wiping, be slightly powdered with unscented hair-powder or powdered starch. If occasional heat creates redness and chafing, a small quantity of plain pomatum, or lip salve, is often serviceable.

After washing and drying, the skin should be rubbed with the hand or a flannel glove; this restores the circulation to the surface, and is agreeable and soothing. Morning and night this washing, from head to foot, must be repeated, while every impurity, from whatever cause, should be immediately removed from the skin during the day. If a child throws up its food, or there is much flow of the saliva from teething, the face and throat should be washed once or twice during the day. Before the clothes are put on, the child should be allowed to kick and stretch its limbs upon the lap; this affords an opportunity of ascertaining its healthy condition. At no period of childhood should this attention be omitted; any little defect in walking, running, or even sitting, should be inquired into, and the cause ascertained.

The clothes of an infant should be made with reference to convenience and speed in dressing, without requiring any pins for the fastenings. The band, shirt, and back skirt or flannel, may be arranged while the infant lies on its stomach; turning it on its back, they may be fastened in front, and the diaper and flannel square folded and secured. Raising the child on its seat, the frock and petticoat may be put over its head, the arms put through the arm-holes of both at once, the palm of the right hand of the nurse supporting the infant across the chest, while the fingers assist the left hand. The child is then again turned over (if the frock fasten behind), and the strings tied. Putting the arms through the sleeves is a nice part of the task. In order to avoid injury or pain, the nurse should ascertain how the joint moves, remembering the extreme delicacy of the limb she directs. The clothes which are taken off should be examined; those that are not dirty, but moist, should be well dried before using them again, and nothing retained that has an unpleasant smell. Where economy is important, the offensive part may be washed out.

An infant usually cries considerably while washed and

dressed. When not violent and continuous, crying is serviceable; it gives the only exercise to the lungs, voice, and respiration, that infants can bear or take. As they grow older, and acquire other powers, crying is diminished. Tenderness and dexterity are, nevertheless, in all cases needful; when roughly handled, the sight of the basin and the sound of the water are the signals of suffering and sorrow, and it may be years before a child can regard washing as a source of comfort. This it is, and ought to be; every pains should therefore be taken to soften its discomforts to the young and tender. When the child is old enough to be amused, a playful, gentle manner on the part of the nurse will render the operation so pleasurable that all painful recollections will fade away, and agreeable recollections only remain. As soon as children acquire the power of voluntary motion, they necessarily make themselves dirty; a habit of frequent washing renders it uncomfortable for them to remain in that state; but at an early age pleasure in washing mainly rests upon the way in which they are handled—if roughly pulled and twitched, and wiped with no regard to comfort, tears, rebellion and dislike, naturally accompany the efforts to keep them clean.

Every kind of clothing should be aired before a fire previous to being put on; all flannel garments, in particular, require to be carefully dried in this manner. Either damp linen or flannel, dried upon the person, must of necessity produce evil consequences, especially where, as with infants, there is little exercise. The quantity of clean linen they require makes caution upon this point still more important.

VENTILATION.

The organs of respiration are constructed in accordance with the nature of the atmosphere, or what is called pure air. They are, therefore, deranged, and the blood becomes vitiated by any departure from this natural order. As air

that has been frequently breathed is deprived of its oxygen, and charged with carbon, and thus is unfit for respiration, there should always be a means of admitting fresh air, or renewing the air of an apartment inhabited by children. To do this where there is no proper arrangement for ventilation, without creating draughts, is a difficulty. In mild weather, a window may always be safely left open during the day; and if this be insufficient, or the weather unfavorable, opportunities should be taken to change the atmosphere by a thorough draught of air when the children leave the room. A window open at top, about an inch, will do something toward keeping the air wholesome, without much risk, particularly if the window be so high that a stream of cold air does not descend at once upon the children. When the attention is directed to the importance of pure air, occasions continually offer when rooms may be ventilated without danger of cold. Sleeping rooms are more particularly liable to deficient ventilation; three or four children probably sleep in the same chamber, and going early to bed, the air is perhaps unchanged, or only changed in a small degree, for ten hours. It is scarcely possible to lay down precise rules for preventing such an evil.

Those who possess the means, ought to avoid placing several children in the same bed room; and those who labor under the difficulties of small houses and large families, will meet the evils of close rooms by taking care that there is some aperture, either the chimney, or a ventilator in the ceiling, door, or window, which shall admit air with the least possible draught. It is a greater evil when the same room serves for day and night; but here, also, an exercise of ingenuity and care may serve the desired end. Where there are difficulties, let them be met by that determination which, when springing from conviction, is generally able to accomplish its object. Bedding needs daily ventilation. Every morning, all the beds should be thrown open, and freely exposed to the

air until perfectly cool. The perspiration which is generally abundant during sleep, occasions a necessity for this precaution. Heated impure air has a bad effect upon the tempers of young children; they grow languid, uneasy and fractious; the nervous energy is checked, and thus all the functions, those of the brain especially, are enfeebled.

Children evince uneasiness by crying, passive fretfulness, or active violence, as they are differently constituted. A constant recurrence of irritating causes renders them habitually fretful. They are, therefore, morally as well as physically injured by breathing an impure atmosphere. The mother or nurse being subject to the same influences, their tempers are in no condition to soothe the fractious little beings around them. Mutual and increasing irritability prevails, destructive of true maternal and filial feeling. Impure air is not the only cause of this miserable state of things, but it is one which aggravates all the other evils.

Considering the defective food and clothing of the children of the poor, and also the badly ventilated and generally filthy condition of their dwellings, it is evident that much of that health which they possess is owing to their spending the greater part of their time during the day in the open air. This fact, in itself, ought to impress upon all mothers the propriety of preserving a constant freshness and purity of atmosphere in the apartments of their children; at the same time, however, taking care to prevent the rushing of cold draughts from doors or windows, as these cause colds and other illnesses perhaps as dangerous as the maladies which may arise from the want of necessary ventilation.

There are many points connected with pure air, which require constant attention where there are children. Among these may be cited the instant removal of dirty linen, and all other offensive matter; forbearance from drying or airing clothes, bedding, etc., while children are

in the room; abstaining from the use of any clothing, sheets, blankets, etc., after they require washing; neatness with regard to utensils; in short, minute attention to cleanliness, which is not only essential to health, but has its influence upon morals—for dirt and indelicacy are frequent companions, and a disregard for the decencies of life is a step toward indifference to its virtues. For these reasons, as well as for security to health, *habits of cleanliness and delicacy should be formed early*; children acquire or disregard these in proportion as the manner of those associated with them is indifferent or careful. When their mother or nurse is systematic and reasonable in her attention to the personal necessities of the children, they feel the influence of such habits, although they neither reason nor reflect upon them; after a time a sense of comfort and self-respect is associated with the observances to which they have been accustomed, and a sense of propriety eventually becomes part of their character.

EXERCISE.

Repose is essential to the existence of a new born babe; the functions of respiration, though regular, are not prepared for the excitement caused by motion, nor are any of the animal organs fitted for exercise. Unless where there is unusual strength, the fatigue of washing and dressing is sufficient for the first three weeks, as is amply proved by the long sleep which (when all else goes on well) usually follows upon those operations.

In the course of a few weeks, the senses begin to act. A brilliant object attracts the eye, or a sound the ear, and a slight movement is the consequence. This is the beginning of voluntary muscular motion. In time, muscular action becomes independent of mental impressions, for the activity of the body soon outstrips the progress of the mind, and leaves it behind.

After this period, it may be said that an infant can

create exercise for itself in the acts of sucking and crying, and in slight movements of the head, hands, and feet. For some time it is not fit for any other exertion of its muscular system, and accordingly it should be subjected or exposed to no other. It should not be dandled, or in any way moved violently about. It should lie quietly in the arms of the nurse, or in its crib or bed, carefully supported in all parts of its body—head, back, loins, and limbs. The reason of this is, that the bones are at first cartilaginous, or gristly, soft, pliable, and elastic, and therefore totally unfit for enduring any strain, force, or weight. Great evils may follow from the infant being forced prematurely into an upright position, or from that position, after the child is in some degree fitted for it, being continued too long. Women entrusted with the charge of young infants out of doors, are perpetually seen subjecting them to the upright posture, prematurely, or too continuously, from a natural but most fatal wish to save fatigue to themselves. It should be distinctly understood that when the upright posture is assumed, the weight of the upper part of the body is thrown upon the lower part of the spine. If that part of the system be sufficiently strong, no harm ensues; but when it is otherwise, it gives way, and the chest is thrown forward and downward. The double consequence is a curvature of the spine, which too long neglect may confirm into a settled deformity, and a crushing of the organs on which depend respiration, circulation, and digestion.

A slow rocking or swinging motion as the infant reposes on the lap or in the arms, is the best possible commencement of exercise. Sudden jerking on the knee, or pats on the back, or anything which jolts and shakes, produce internal pain, and is more irritating than soothing. Gentle motion may proceed to something more active, as the strength of the limbs (and the neck especially) dictates. The power of holding the head up, and moving it steadily from side to side, forms a good index

of the strength of the spine. In exercising a babe, nature must be followed and seconded, not directed and controlled. When it is desired for the first time to change the recumbent position, the whole person of the infant should be gently elevated as it lies along the arm or lap, and when the upright position is at length assumed, it should be only for a minute or two. Attention should be given to the effect produced upon the breathing by exercise. Some infants turn black in the face upon meeting the air quickly, and their breath will be stopped on being carried rapidly down stairs. Where such symptoms exist, additional care is necessary. An infant should never remain very long in one position, because the pressure that takes place being confined to one part, free circulation is prevented, and numbness ensues. When carrying a heavy child, the nurse herself experiences this, and the child must feel it in a greater degree. From six to fourteen months is the period which most taxes the strength and activity of a nurse. The child has muscular power enough to sit up, and to bear, and to need, a good deal of motion, yet is not sufficiently strong to depend upon itself. It still requires to be so carried, that its weight chiefly falls upon the nurse, while its incessant desire for motion makes nursing really hard work. But when allowed and assisted to take judicious exercise, it sleeps more soundly and for a longer time at once; it will be more easily diverted in its waking hours, while its growing intelligence and affection render it an object of deeper interest and amusement. Thus, the good nurse has her reward.

The spontaneous efforts of a child will never injure it, if placed in a situation to make these efforts secure. Thus, when an infant is laid on a large soft cushion on the floor, the endeavor to rise is made as soon as the muscles of the neck have some power, and the head will be lifted a little, but the effort stops there. The head can not be retained in its position, and it falls again. The

cushion protects the part; there is no pain, and the attempt is made again and again, till the fatigue or disappointment causes a change in the action, or a cry for that assistance which experience has taught it to expect. Accustoming a child thus early to be left on the floor, or in bed, is a means of moral discipline for the mother's convenience, and for the furtherance of freedom to the limbs. When a child can sit up firmly, tying it into a chair that will support the back, into a chair swing, or allowing it to sit on the stuffed cushion with the means of amusement just within reach, promotes exercise, and permits free spontaneous exertion. Such and similar resources for the advancement of physical good ought never to be adopted as a means of punishment; when once this has happened, they are regarded with aversion; neither ought a child to be forced to submit to them, if at any time they are disagreeable or fatiguing. As with all the other functions, exercise is a cause and a consequence of strength. The first indication of the desire to make the legs bear the weight of the body, is given by the child itself, by pressing its feet upon the lap; the lower limbs are, however, still incapable of supporting its weight. The pressure, with the setting of one foot before the other, are only salutary preparatory exercises, and should be encouraged and aided by holding the infant so that it may just place the feet on a level surface, without bearing its own weight; from this the progression must be very gradual.

As the power of walking alone depends upon the strength of the bones and muscles, the period at which it may be acquired is not always the same; much, however, depends upon nursing. An infant that is continually on the lap or in the arms, does not get the same amount of healthful exercise which lying on the floor and tossing about permits, and is therefore not so well prepared to use its limbs; it is not likely to run alone as early as one that has been thus reared, nor as soon as the infant who has been made to use its feet and legs by continual fore-

ing. The probability is, that a child too soon forced to walk has bent legs or weak ankles; or if it escape these evils, it will probably be less strong upon its legs, and less active at two years of age, than the child whose exercise has been brought on by more gradual and judicious means. Children have been known to run alone at nine months; the average age is between twelve and sixteen months.

Very fat heavy children should be carefully managed, while a delicate child requires equal caution, although from a different cause. A notion prevails that it is desirable to get a child early to run alone, because it saves trouble and time; yet as much attention (perhaps more) is required when the infant shows a disposition to walk early, as when it walks late. For many weeks, every attempt it makes to walk exposes it to the danger of falls or blows against furniture. It has to learn to balance, and guide itself, to acquire a knowledge of distances, all which can only be done by frequent repetition, during which the eye and the hand of the nurse are as needful as ever. These are better than her voice: the constant injunction to take care, and the exclamations of alarm which escape from the anxious guardian of a child learning to walk alone, are seldom beneficial; indeed, where the child is naturally timid and cautious, they deter him from making serviceable attempts and spontaneous efforts, and encourage a hesitation which renders him incapable of accomplishing those efforts with the certainty which makes them pleasurable; whereas, if he is heedless, he learns to rely upon the warning sounds which greet his ear, and is slow in acquiring those perceptions upon which safety depends. An irritable child is made impatient by them, and an obstinate one defies them.

It is desirable not to bestow too much pity upon a child when suffering from a fall or a blow: practical experience of the effects of incaution must be acquired by personal inconvenience; but while the effects are felt, there should be neither blame, advice, nor indifference, but quiet assist-

ance and moderate sympathy. A timid, sensitive child requires to be encouraged to endure; a bold one, perceiving his sufferings to be disregarded, learns also to disregard the pain of others, and finally, to inflict it. Some children are very angry when hurt; with such it is useful to discover that you distinguish between the cry of anger and the cry of pain.

None of the artificial means of teaching children to walk, can be recommended; the leading-strings occasion all the weight to be thrown upon the chest, while the go-cart, though less objectionable, forces a child to continue on its feet too long at a time. It is a good plan to encourage walking, by placing the chairs and tables at convenient distances for the child to support itself by; it then sits down on the floor when fatigued, and in raising itself again, acquires power in the right way. Leading by one hand ought not to be resorted to until there is enough of strength and firmness to walk upright, otherwise the child is dragged along, swinging upon one arm, with the weight of the body suspended by one side only. Lifting a child by both arms is dangerous, for it strains the ligaments, and often occasions injury to the collar-bones; beside which it gives pain. A child ought to be lifted by placing the hands round the waist. A child of a year old will raise itself by its arms, but it never prolongs or forces the effort to the production of pain. The only danger arises from a fall against the furniture.

As soon as a child can walk safely and comfortably, it is only necessary to provide against walking too much at a time when taking out-door exercise. While playing about the room, there is little occasion to guard against over-fatigue, because the child, guided by its feelings, sits or lies down on the floor at the first sense of weariness. This source of rest it ought freely to enjoy, while its constant change of position calls the various bones and muscles successively into exercise, so that none are exhausted. When out of doors, this rest can not be obtained, except

in warm, dry weather, and in fields or gardens. At other times, and in various situations, the nurse's arms must be the substitute; and she must remember that, although the child *can* walk, the power is newly acquired, the bones are still soft, and the muscles delicate.

Most children are disinclined to proceed along the roadside with regularity, and prefer to sit down or to stand still. On this account they must be tempted along by a ball, a rolling stone, or any toy that beguiles them on. Ingenuity must be set at work to devise variety, and apply that which is fitted for the purpose at the moment it is wanted. The exercise thus obtained will be more serviceable to the child, and less irksome to the nurse; for, even at this early age, judicious employment of the senses promotes a healthy condition of the functions, and prevents the painful languor which follows upon the mere mechanical motion of the limbs. There are always sufficient objects of attraction, whether the exercise be taken on the high road, in the fields, or in a garden; but numerous and interesting as they are, the child soon ceases to observe and to enjoy, if the notice of his nurse does not assure him of her attention and sympathy. Where two or three children are together, attention and sympathy are still to be given. These will only have to be addressed to many instead of one, and to be adapted to the nature and age of each child.

Mothers ought, if possible, to superintend the out-door exercise of their children. The duty of doing so is almost universally consigned to servants, who, even though well disposed, are not prepared by education to understand the nature of their duties. Children will learn much from the occasional example of a mother who is practically wise. It is not yet considered a duty among women to take daily walking exercise—household occupations and sedentary employments are regarded as more important. Yet, surely, the preservation of health is a duty. Want of time is urged in some cases as the obstacle,

want of strength in others. In most, it is to be feared, want of inclination is the real impediment.

Unless compelled to remain within doors by the performance of some duty which could not be deputed to servants, mothers should make an exertion to go frequently out in company with their children, both for the sake of watching over their personal safety, and calling their attention to objects calculated to amuse their fancy and instruct their infant understandings. The health of the mother will in this manner be as much benefited as that of her children. The prevailing excuse of indisposition or want of time is often deceptive. Much of the common feeling of indisposition arises from neglect of exercise. It is necessary to repeat, that the muscles grow inefficient from want of use; exercise begun in moderation, and gradually increased, will restore them to the power nature intended them to possess. And what better motive for the undertaking than the benefit of the children? what more delightful and salutary occupation than to direct and aid that which is to produce so much moral and physical health and vigor? Even these motives should stimulate the disinclined to shake off the lethargy of idleness. Trees, flowers and animals are works, great, indeed, but so simple in their greatness that they are peculiarly fitted to delight and advance the dawning faculties of children. A mother's tenderness and intelligence draw from these sources an increase of happiness. She may sow the first seeds of religion by fostering a love of nature, which shall gradually be led up to the Author of Nature; while she herself derives the inestimable advantage of being associated in her children's minds with all that is beautiful, entertaining, good and holy.

SPECIAL DISEASES OF THE CHILD.

If a child is properly cared for, as has previously been described, it will rarely be sick, unless it inherits a feeble constitution from its parents, or has been subjected to

some undue exposure. It is true, there may be some slight attacks of indisposition, but these pass off with but little or no medicine. Exposure or sudden changes of temperature will, if the child is not properly protected, give rise to colds and diseases of the respiratory apparatus; and improper food, or sudden changes of diet, will cause derangement of the bowels, and disorder of the nervous system. The second summer, when the food of the child is changed from fluids to solids, is very frequently the period of greatest danger—summer complaint, the great destroyer of children, prevailing at this time.

FEVER.

Slight fever is of very common occurrence with children, resulting from cold, indigestion, or any arrest or derangement of the excretions. The child is fretful and restless, and does not take its food as well as common, and even its milk is apt to disagree with it. This feverishness may pass off in a few hours, or it may last several days.

In such cases give the child a warm bath, as has been heretofore recommended, and repeat it twice a day, if it seems necessary. With this you can administer a strong infusion of pleurisy root, sweetened, in doses of a teaspoonful every half hour, or hour, using some opening medicine, as castor oil, if the bowels are bound up. If the fever is more severe, I use the aconite, and for domestic use I prefer the small homœopathic globules saturated with the tincture, of which from two to four may be given every hour, until the fever passes off. In place of these, six drops of tincture of aconite may be added to a tumbler half full of water, and given in doses of a small teaspoonful every one or two hours, to a child over six months of age.

Children are liable to a severe form of fever, very closely resembling the remittent fever of the adult. It is

usually caused by cold and arrest of secretion, though it may be produced by any of these causes of fever.

For two or three days the child will be observed to be dull and fretful, its rest is broken, and its food is not taken with the accustomed relish, and does not digest well. Following this is a slight chill, frequently not noticed by the parents, and this is succeeded by fever.

The surface becomes hot and dry, the pulse is increased in frequency, the urine is scanty, and the bowels constipated. The child is sometimes very restless and uneasy, at others it seems stupid and drowsy, and sleeps with its eyes partly open. The fever is remittent; continuing for a variable period of time, it gradually abates, to come on again in the course of half an hour to an hour. Thus there may be one or two, or even a half dozen paroxysms of fever in the course of twenty-four hours. The disease continues a considerable length of time, but if properly managed, it may be expected to cease by the fifth to the seventh day.

TREATMENT.—In this case I should recommend that the treatment be commenced by the thorough use of the general warm bath; or, in place of this, that the child be washed with castile soap and water, rubbed well, and then its feet well bathed in warm water for a quarter or half an hour. Give the aconite, as just recommended, either the globules or in solution in water, and also the infusion of pleurisy root. If the bowels should move naturally once a day, do not disturb them; but if they do not, give some mild cathartic, as sweet or castor oil, magnesia, etc.

In a couple of days of such treatment, the fever will have abated to a considerable extent, and the child will be comparatively comfortable. Now, in order to completely arrest the fever, we usually give quinine; about two grains for a child a year old, will be the appropriate quantity. Divide it in three doses, and give them one or two hours apart, in the early part of the day, when there is least

fever. It may be repeated for two or three days, and the fever will be found completely broken up.

AFFECTIONS OF THE RESPIRATORY APPARATUS.

These have been considered at some length in the first volume, and they need not be repeated here. As was noticed there, croup was of most frequent occurrence. Next in frequency we have bronchitis and inflammation of the lungs, neither of which differ materially from the same diseases of the adult.

In the treatment of bronchitis and inflammation of the lungs in children, we will find the use of the warm bath of much importance; and, next to this, proper applications to the surface of the chest. Moist heat is almost always beneficial. Hence we obtain great advantage from the use of a warm, soft poultice. Two or three roasted onions, cut up, moistened with hot water, and spread upon a soft cotton cloth, makes an excellent application. My favorite remedy is a cloth spread with fresh lard, upon which is sprinkled the emetic powder, No. 6, so as to completely cover it. I have seen children recover under its application who could hardly breathe, and had been given up to die.

As an internal remedy, I would advise the ipecacuanha in small doses. I usually direct it in the following manner: Take ipecacuanha, ten grains; white sugar, one drachm; mix thoroughly, and divide into twenty powders. These may be given as often as one every hour, and should they produce too much sickness of the stomach, each powder may be divided into two parts. I know of no remedy or combination of remedies that will equal this, and I have frequently treated the severest cases of inflammation of the lungs in children with this alone. Any of the means recommended under the head of bronchitis, or inflammation of the lungs, in volume 1, may be used.

DISEASES OF THE DIGESTIVE ORGANS.

The digestive organs of the child are more frequently deranged than any other part of its system. Any change of diet from that which nature provides, is likely to induce derangements of these organs, and not unfrequently impairment of the mother's health will be attended with similar results.

INFANTILE DYSPEPSIA.—Children, like adults, suffer from indigestion, and this in some cases is so persistent that it might be termed infantile dyspepsia. When nursing, the child frequently throws up its milk, if it has been taken in excess, or if the stomach is not in proper condition to receive it. The shape and position of the stomach are admirably adapted to thus freeing itself of any material it can not properly appropriate.

If this vomiting becomes too frequent, and especially if attended with evidences of nausea and straining, we may consider that there is something wrong with the stomach. The trouble is still more severe when there is greenish, frothy stools, and more or less pain, the child being cross and fretful.

In these cases it is of importance to look into the child's diet, and see whether there is any thing in it that may account for the trouble. Even when the child is entirely dependent upon its mother's milk, we will not unfrequently find that the severest forms of infantile dyspepsia are dependent upon errors in her diet. It is sometimes difficult to convince a mother that this is the case, and that what she eats produces so marked an influence upon the child; yet, it is a fact, and the sooner they become impressed with it, and discard the objectionable articles of diet, and live on plain nutritious food, the sooner they will get rid of the annoyance of an irritable, crying child.

It is sometimes the case that the mother's milk will disagree with the child, no matter how much care she takes

with her own health, or how particular with her diet. And occasionally it will become necessary to wean the child on this account. If the child is eating, and suffers in this way, change its food until you have selected a diet that will agree with it.

Occasionally, the trouble depends upon a constant desire to feed, and an excess of food taken upon the stomach. It often happens that the child is never satisfied except when sucking; and when it has indulged to repletion, it seems very uncomfortable until it has disgorged it. The relief thus given is immediately followed by a renewed desire to suck again, and it is thus constantly overloading its stomach, and never giving the overworked organ time for rest. The remedy in these cases is, obviously, to control this species of gluttony, and not let the child nurse too much, or too frequently.

If it becomes necessary to administer medicine to correct this, it will be advisable in most cases to see a physician. An infusion of peach-tree bark, as has been heretofore recommended, answers a good purpose; and an infusion of the compound powder of rhubarb, No. 7, will also answer in very many cases.

COLIC.—This is a very distressing complaint with young children, and is frequently an occurrence of every day. It may be occasioned by a variety of causes, as badly digested food, some derangement of the milk of the mother, or from neglect of the nurse to keep the child warm. It is of very frequent occurrence in children who are raised on artificial food, and will attend any improper change of food, or arise when the food is not well prepared. The mother's milk may be changed in its properties by indiscretion in food, overloading the stomach, and in many cases from outbreaks of temper—a cross mother almost invariably making a cross child.

Flatulence is the result of all these causes, and the distension of the stomach and bowels produces pain. In some cases colic will occur at any period of the day and

night, and it will be impossible to trace it to any apparent cause. The child will take the breast and nurse freely, and the mother will furnish an abundance of milk of seemingly good quality, but from some reason the child's stomach can not appropriate it, it becomes acid, gas is generated, and severe colicky pains are the result. These cases should be treated as named for indigestion.

TREATMENT.—In these troublesome cases, always avoid giving medicine, if possible. There is some cause for the colic, which, if you can discover and remove, the trouble will be at an end. The mother should pay strict attention to her diet, and in a short time she will be enabled to determine whether any articles of food she has been using has given rise to it. If the child is being raised on artificial food, and cow's milk is given it, institute an examination into the health and habits of the cow, and the cause of the difficulty may be discovered, and changing the source of supply will remove the trouble. I have had many cases in my practice, of children suffering from indigestion, colic, fever, and marasmus, in which all medicines given for the cure, failed of giving any relief, but in which an investigation has shown the cow to be unhealthy, or fed on unhealthy food, as decomposing vegetables, still-slops, etc. Changing the milk in these cases, obtaining that which was fresh and healthy, has speedily accomplished a cure. In other cases the vessels in which the milk was obtained and kept, or the nursing bottle, would be allowed to become sour, and this would prove the cause of all the trouble.

In some cases it will become necessary to entirely change the child's food. Thus, if it is nursing, it will have to be weaned and fed with milk. If it has been taking milk, some of the other articles of food heretofore named must be substituted for it. Proper attention to these points will frequently obviate the necessity of giving medicine, and, without it, medicine is usually given to little purpose.

If you determine that something must be done to give temporary relief, prefer external applications to internal medicines. Heat a flannel cloth and apply it to the abdomen, or the cloth may be wrung out of warm water and applied. A hot flannel applied to the back over the loins, sometimes gives speedy relief. Should this not answer the purpose, use the warm bath, for five, ten, or fifteen minutes. Internally, a teaspoonful of sweet oil every two or three hours, until it operates, will sometimes be of advantage; or if there is much acidity of the stomach, magnesia may be used in its stead. An infusion of spearmint, sweetened, will be as simple and about as efficient as any thing that can be given; even catnip tea, warm, will sometimes answer the purpose.

Never, under any circumstances, give the child any preparation of opium, as it may do the child irreparable injury. Paregoric, Godfrey's cordial, Bateman's drops, and all the mother's cordials, or other patent medicines for this purpose, no matter what their names, contain opium, and are all equally objectionable. It is better to bear the annoyance of a restless child, rather than give that which is not only dangerous from its present effects, but may entail lasting injury, not only upon its physical health, but also in its mind.

Cholera infantum, or summer complaint of children, was fully described in volume I, as was also verminous affections, and the reader is referred to it for description and treatment.

AFFECTIONS OF THE SKIN.

The severe contagious diseases, scarlatina, measles, small-pox and chicken-pox, have been described in the previous volume, to which the reader is referred. But there are many minor affections which need to be recognized, and a correct treatment understood. The skin of the child is very delicate, and more liable to disease than

in the adult, and in many cases the constitutional effect is much more marked.

Occasionally, diseases of the skin seem to answer a vicarious purpose, and relieve the system of some morbid matter, which, if retained, would produce disease. When we have any reason to believe that this is the case, no attempt should be made to cure them until means are instituted to remove the constitutional disease that they are connected with. In other cases, when the eruption has been of long duration, it will not be safe to arrest it immediately, but means should be made use of to increase the natural excretions, and the eruption stopped gradually.

MOTHER'S MARK.—It is generally supposed, and I think with truth, that certain impressions made upon the mother's mind during pregnancy, will affect the growth and structure of the child, and in some manner deform it. It is true, that we can not account, in a rational manner, for any such occurrences, but the instances are so numerous that we can not dispute the connection between the impression and the mark. As heretofore noticed, there is not more than one child in a hundred marked when the mother anticipated it, and we are very often asked by the anxious mother whether the child is "all right," under the impression that it will be marked.

Numerous instances are related to prove the relation between the impression on the mother's mind, and the deformity of the child. The severest case of the kind that ever came under my knowledge, was a child born with a hand so completely deformed as to be useless, and which was attributed to the mother's witnessing the dressing of a hand that had been crushed in a threshing machine. The most common form of mother's mark, is a discoloration of the skin, from an increase of the size of the blood-vessels. It may be located on any part, and in some cases increases in size as the child grows. If located upon the face or neck, it is sometimes a very

great deformity. Occasionally, it forms a reddish tumor, excessively vascular, projecting from the surface, and is not only very objectionable, from its appearance, but is tender, easily injured, and sometimes the seat of pain.

A case came under my care of a child that was thus marked on the cheek immediately below the eye. The mother attributed it to her husband's throwing a large cherry at her, which, striking upon the same part of the cheek, bursted, and not only startled her at the time, but firmly impressed her mind that the child would be marked. When I saw the little girl, then two years old, the mark was about as large as a dime, as red as blood, and slightly elevated above the skin. I removed it with considerable trouble, much to the gratification of the parents. In another case, the child, then thirteen years old, had a mark covering a considerable part of the neck on one side. The mother attributed it to fright, from hearing of a neighbor who had cut his throat. It had grown so large that nothing could be done for it.

These cases are very difficult of treatment, on account of their vascularity; indeed, some children have lost their lives from hemorrhage during an operation. The growth should be removed early in life, if it is noticed to grow, as it is then much easier accomplished than if allowed to become large.

SHINGLES.—This disease, technically called *herpes zoster*, may attack the young or the adult, though of most frequent occurrence about the age of puberty. It makes its appearance upon some part of the trunk in the shape of a group of small vesicles, the skin being reddened for some distance around. They continue to come out at new points, until the eruption has traveled half way around the body, or in some cases entirely around it. It is a popular superstition, that if occurring on both sides, it will prove fatal if they meet, thus encircling the body. There is no truth in this, as the disease is rarely or never attended with danger. It is usually attended with con-

siderable fever, and the patient feels badly for several days.

TREATMENT.—But little treatment is necessary in most cases. The child should be bathed daily, and the foot bath should be used when there is much febrile action. Give a dose of castor oil or some mild purgative to open the bowels, and if the fever is troublesome, aconite, and an infusion of pleurisy root, may be given, as heretofore recommended. If there is much irritation at the point of eruption, dust it with scorched flour, or wet it with sweet cream.

RING WORM.—This eruption most commonly makes its appearance on the face and neck, in the form of small vesicles, situate in a ring, sometimes quite small, but at others it will be as large as a dime, a quarter of a dollar, or even larger. The spot is reddened, and sometimes slightly elevated, and gives rise to a troublesome itching. In many cases it will run its career in a week or ten days, and this needs no treatment. When it is chronic, and lasts for a long time, it is recommended to paint it with tincture of iodine. A simple domestic remedy is to apply a slice of onion to it each night.

ITCH—SCABIES.—In former years the itch was quite a common disease, and very few families of children were raised without having more or less trouble with it. At the present time it is of somewhat rare occurrence, as more attention is paid to cleanliness, and an avoidance of the contagion.

The itch is caused by a small insect or worm, which burrows in the skin, and is called the *acarus scabei*, or *itch insect*. The disease is propagated from one to another by the transmission of this insect, either by contact, or by the clothing, beds, or the use of towels which have been used by those suffering with the disease. It usually makes its appearance first upon the back of the hands, between the fingers, and the anterior part of the wrists, though it may extend to all parts of the surface where the skin is

fine and delicate. It comes out first as a slight hardness and elevation of the skin, upon which a small vesicle arises. If these are abraded by scratching, they produce a yellow, viscid matter, which forms a scab, and this may be renewed several times before the part heals. When very bad, these crusts or scabs will become very thick, and sometimes cover quite large spaces.

The disease derived its common name from the continued and unalloyed sensation of itching which the person experienced, and which in mild cases was rather pleasurable than otherwise.

TREATMENT.—The itch is usually a very stubborn disease, when bad, or when improperly treated, but if taken in time it may be got rid of without much trouble. As a general treatment, I would advise the use of a sulphur ointment: as, take sublimed sulphur, two ounces; bi-carbonate of potash, one ounce, and lard, eight ounces. First wash the parts thoroughly with soft soap and warm water, and then rub the ointment in thoroughly. It is best applied at night before going to bed, wiping the surface well the next morning, and putting on clean clothing. If an internal remedy is deemed necessary, sulphur in doses of five or ten grains, three times a day, will be the best.

ROSEOLA.

Roseola, or *rose-rash*, is a mild exanthematous eruption, continuing from one to six or seven days, and attended by more or less febrile action. The causes are obscure, though arrest of secretion and gastro-intestinal irritation are the most frequent. It sometimes occurs as an epidemic, especially in warm seasons, and sporadically, from over-heating the body, severe exercise, etc.

SYMPTOMS.—*Roseola infantilis*, as its name indicates, is usually met with in young children, and arises from gastro-intestinal irritation, or from dentition. It comes out in the form of deep rosy-red patches about one-fourth of an inch in diameter, and circular in form. When severe,

they are very much crowded together, so as to give a general red appearance to the surface, but yet each one is well defined. They may continue for several days, or vanish and reappear for several days. Usually the fever is but slight, but the child shows symptoms of irritation, being cross and fretful.

Roseola æstiva is usually ushered in by marked febrile action, and in children delirium or convulsions sometimes supervene. The eruption usually appears about the third or fourth day on the face and neck, and in a few hours involves the greater part of the body. "The spots are of a deep red color, more irregular in shape than those of measles, and their original color soon passes into a light rosy hue. There is also present a considerable degree of itching and pain, and often difficulty in swallowing." The disease runs a very variable course, but the eruption usually disappears in three or four days without desquamation.

Roseola annulata comes out in the form of rose-red rings, in the center of which the skin retains its natural color; it is said to be principally observed on the abdomen and buttocks. It is not usually accompanied with much fever, but is occasionally very persistent, and is usually associated with gastro-intestinal irritation.

TREATMENT.—Give the child a warm bath, as heretofore recommended, or in its stead the child may be thoroughly sponged with the alkaline wash, and have a hot foot bath. Give internally, the neutralizing cordial, or an infusion of the compound powder of rhubarb, in doses of a teaspoonful every two hours until its bowels are moved, and, if there is much fever, the aconite in water, as heretofore recommended.

ERYTHEMA.

Erythema is one of the mildest of the exanthemata, and usually is not accompanied with febrile action, though in the severer cases there is arrest of secretion and some

constitutional disturbance. It may be associated with other diseases, and it is thus with intermittent and remittent fever, gastric irritation and diarrhœa. It may be produced from mechanical irritation of the skin, but the most frequent causes are cold and arrest of cutaneous secretion, or gastric, intestinal, or menstrual derangements.

SYMPTOMS.—The disease appears in the form of patches of variable size, of a light, superficial red color, readily effaced by pressure, and most frequently on the face, chest and limbs. In some cases they spread so as to cover a considerable portion of the body, but this is not frequent. One form, termed *erythema nodosum*, is preceded by slight constitutional disturbance, and comes out in oval, red patches, from half an inch to an inch in diameter, most generally on the lower extremities. When more fully developed, they are slightly elevated above the adjacent skin, and in a few days form small, red, painful tumors, which seem inclined to suppurate, and in severer cases give a suspicious sense of fluctuation, but at last disappear without any change of structure. The first form may last but a few hours, or in rare cases it may continue two or three weeks; the second usually continues for from three to six days.

TREATMENT.—But little treatment is needed in the simple form of the disease. The bowels may be opened by equal parts of compound powder of rhubarb, and compound powder of jalap, or with the first alone. The surface should be bathed with a weak solution of carbonate of potash, and in some cases we would use the warm foot bath. In the second form of the disease, I have usually prescribed a gentle laxative, with a solution of acetate of potash, and very small doses of aconite. The use of the alkaline bath gives great relief, and it may sometimes be repeated several times a day.

ERYSIPELAS.

Erysipelas is undoubtedly a disease of the blood, and should be classed with the eruptive fevers, though not contagious, except in exceptional cases. It may occur at any age, though it is more frequent in adults than in children. The causes of erysipelas are obscure, though it is probably occasioned by cold, arrest of secretion, etc., as in other forms of fever. It occurs most frequently in the spring and autumn, and in persons of a fine delicate skin. Occasionally it becomes epidemic in a neighborhood or section of country, and in other cases highly contagious, as in large hospitals. I have known surgeons that had to suspend all operations, even the most simple, on this account, for weeks, as almost every case operated on would have erysipelas.

SYMPTOMS.—We distinguish two forms of this disease: the first being superficial and affecting the skin alone, while the second is termed deep seated. The first is preceded, or in other cases shortly followed, by a well marked chill, to which succeeds febrile action. In some cases the fever is slight, but in others it is as intense as in the continued fevers. With the commencement of the chill a circumscribed redness of some portion of the skin comes up, and in a few hours becomes slightly swollen, hot and painful. The redness is generally deep, but is affected by pressure, though from the exquisite tenderness of the part, the patient will rarely permit it. As the disease continues, it usually extends slowly to adjacent parts, the advance of the inflammation being marked by slight swelling, pain and tenderness on pressure. In this way, commencing as a small spot on the face, it sometimes extends until it involves the entire face and scalp.

Frequently in the course of two or three days the epidermis is loosened and distended with a yellowish serum, forming bullæ of larger or smaller size, and these rupturing pour out their secretion, and sometimes become

covered with thin incrustations. The redness usually fades, and the inflammation commences to disappear by the fifth or sixth day, leaving the epidermis wrinkled and yellowish, and at last it desquamates over the entire surface. This form of erysipelas may appear on any part of the body, but is far more frequent upon the face and extremities. The fever is in some degree dependent on the extent of the eruption, though in severe cases where this is comparatively slight it will be very severe and of a low asthenic form; delirium sometimes occurs where the face and scalp are affected.

The other affects not only the skin, but the cellular tissue, and in some cases, the entire structure of a part, and is proportionately more severe. It results more frequently from injuries, as bruises or punctured wounds, but may be idiopathic; it occurs most frequently in the extremities. In many cases the disease is ushered in with a chill, to which succeeds febrile action. Occasionally the fever is very intense, the tongue becoming dark coated, the pulse hard, small, and frequent, the bowels irregular, urine scanty, high-colored and foetid, with low muttering delirium. The local disease comes up as in the other case, with heat, pain and redness, but it is soon observed that the swelling is much more marked. When the disease is fully developed the pain is intense, and the patient can not bear the slightest pressure on the part, which seems to be swollen to its fullest extent. In the course of from three to five days, the redness and heat subside, and the part gives a doughy sensation to the touch, and is, if anything, more swollen and painful. Small purulent deposits are now noticed, which upon being opened, at first discharge a healthy pus mingled with flakes of broken down cellular tissue, and afterward in some cases, a reddish flocculent material. When the disease has been severe, a large portion of the cellular tissue will have lost its vitality, and will be discharged in this manner, recovery being slow.

TREATMENT.—The treatment of erysipelas, though a very severe disease, is usually very simple. We first give a mild cathartic to open the bowels, and afterward keep them regular every day. To lessen the fever, use the tincture of aconite, ten drops to four ounces of water, a teaspoonful every hour for a child four years of age. As a specific for the disease, I order: take tincture of muriate of iron, one ounce; glycerine, three ounces, in doses of one-fourth of a teaspoonful every three hours, for a child, and a teaspoonful as the dose for an adult. It should be largely diluted with water when it is given. The same is used as the local application, wetting a piece of soft cotton cloth with it, and applying it to the part. When there is much irritation of the skin, a soft cotton cloth, spread with lard, will form a very good application.

In deep seated erysipelas, the same means may be employed at first. Should it become much swollen, a poultice made of a decoction of dogwood, thickened with wheat bran, will be found excellent.

DEFORMITIES AND DISTORTIONS DURING CHILDHOOD.

Some children at birth exhibit deviations from the ordinary structure of the body. In some cases such defects are capable of cure. It is the province of the surgeon to determine what may or what may not be done; but it is the obvious duty of parents to avail themselves of the power of art in such cases, and to sanction any operation which may promise to relieve their children from awkward and annoying peculiarities of form. The proper period for such operations must also be determined by the surgeon. A mother's apprehensions are naturally excited, lest the tender frame of an infant should be unequal to support the infliction of pain; but she will be reconciled to the propriety of early adopting the necessary remedies, when she is aware that the increasing intelligence of the

infant renders it more sensible to the pain and fear attendant upon operations, and that its comparatively passive and quiescent state is favorable to the cure of a wound.

Some children are born *tongue-tied*, the tongue being too much bridled to the bottom of their mouth, by which they are prevented from sucking properly. If not remedied, this peculiarity will impede their utterance in after life. It is the duty of the nurse to mention to the medical attendant that there is such a defect, and he will remove it by a slight cut with a pair of scissors. Some mothers are so heedless as to see their children suffering for weeks and months, and even languishing, from this easily remedied evil, without taking the trouble to correct it. In the event of children being born with a *hare-lip*, as it is called, or any similar malformation, or with a redundancy in the number of fingers or toes, the medical attendant must be permitted to remedy the defect at the time he thinks proper, but, generally speaking, the more early that all such peculiarities are removed, the better.

The deformities and malformations found at birth, are not so frequent as those which occur afterward. These are either the consequences of predisposition to disease, inherited from parents, and increased by bad nursing, or are altogether the result of accidents, neglect, or injudicious management. Parents are obviously bound to take every reasonable precaution, in order to guard their children from the occurrence of these inflictions, and, should they occur, to endeavor to repair or subdue them. To possess a perfect frame of body is unquestionably one of the greatest of blessings, if it were for no other reason than its rendering us agreeable objects to our fellow-creatures. The want of it has the contrary effect, and is apt with some natures to lead to moral deformity also. It is a melancholy truth, that a personal defect, instead of exciting compassion and kindness, but too often makes the individual so afflicted a mark for ridicule and contempt. No one can be wholly callous to the effects of

such a misfortune. A man of amiable temper *feels* the pang inflicted, even if he forgive it. The mere dread of ridicule has irritated many minds into a sentiment allied to misanthropy, impelling them to peevishness, pitilessness, malevolence, and all the peculiarities implied in the term bad temper—to splenetic views of life, with its attendant doubts and dissatisfaction. The conduct of the idiots and deformed beggars who frequent our towns and villages, a mark for the gibes and assaults of the ignorant, testifies to the truth of these remarks; while there are evidences among the educated and the talented of the mental deformity caused by bodily malformation. In addition to these considerations, it may be observed, that deformities very much limit the power of self-maintenance.

Parents who are themselves afflicted with hereditary disease, or are aware of ancestors and kindred who have showed symptoms of such disease, are particularly under the obligation to watch their children, in order that the first bad appearances may be met by the proper remedies. Scrofula often affects the bones of young children. From other causes there may be a deficiency of the earthy elements in the bones, rendering them soft, and thereby more liable to injury. The necessity of giving support to the back and loins in carrying an infant, and not allowing it to put its weight upon the legs on first learning to walk, has been already treated, as well as the danger of *forcing* children to use muscular exertion. Wherever there is hereditary predisposition to disease, increased vigilance is needed, and increased attention to the laws which have been found to promote health. The effects of a want of pure air, warm unconfined clothing, regular hours, proper diet and cleanliness, are seen in local weaknesses, as well as in internal and cutaneous disorders. The disease called the *rickets*, which is a modification of scrofula, and may be productive of distortion of the person and limbs, is to be counteracted by peculiar medical treatment, calculated

to invigorate the frame; and in aid of this, as well as of simple weakness of the legs, some kind of mechanism may be applied. Weakness of the legs, whether proceeding from the poor state of health of the mother before the birth of her infant, or from any other cause, must be carefully watched, so that the earliest opportunity of preventing curvature may be taken. In every case the medical attendant should be consulted; but it is proper to state here the result of experiments which have come under our own observation—that if the child whose legs are bent be able to walk, and can not be kept from the ground, the limbs should be subjected to a constant but gentle restraint from a steel and leather apparatus, which generally brings them in a few months, or a year, to a perfectly straight condition. If this be neglected, the child will, in all likelihood, have bent limbs for life.

Children often contract injury unperceived at the time, or concealed by individuals immediately in charge of them, and maladies may begin to affect them, which do not appear conspicuously till they have made considerable progress. When children are undressed at night, it is advisable to encourage them to run about the room, stoop, kneel, sit down, rise again, etc. The mother may then herself observe the action of the muscles and joints, and so be enabled to detect the first symptoms of any injury, the marks of any hurt, or the evidences of any contractions or distortions, whether they arise from weakness or bad habits of muscular action. If the cause can be traced a remedy may be more easily applied. In some cases surgical aid may be necessary, and it should be obtained without delay; but if it be clearly ascertained that the weakness originates in an insufficient use of the part, a gentle but steady application of exercise will probably be found a suitable remedy. The following fact will illustrate our meaning:

A boy of seven years of age was observed by his father to turn in the left knee in walking, so as to limp slightly;

the child was undressed, and on watching the action of the limb, it was found that the boy had, from some cause or other, contracted this habit, and that he avoided as much as possible all use of the left knee; the muscles were consequently weakened, slightly shrunk, and comparatively useless. An exercise was immediately adopted which brought the weak muscles into gentle, continuous use, and at the end of six weeks the limb was perfectly restored. It is necessary to add, that the father himself superintended the exercise. Had the altered gait escaped early notice, it is probable that bandages or irons would have been required as remedies. This fact will serve as an example of the kind of attention and treatment recommended to parents. Similar instances could be added to show that incipient distortions may often be overcome by attention, good sense, and perseverance.

Bad habits, or tricks, as they are called, often produce distortions during the whole period of growth. Before running alone, infants often creep along the floor; a salutary practice when the limbs are employed equally. It is not unusual to see a child make use of one leg only to help itself along, dragging the other after it, as if it were useless; the muscles of the unused limb consequently become flaccid and weak; and when the attempt to walk is made, a limping gait is contracted, and the weak limb becomes permanently debilitated. In such a case, creeping should be wholly prevented, or at least suspended until the injurious habit is forgotten. On first running alone, a fall may produce slight injury, the pain from which may be escaped by avoiding the use of the injured part. If the gait thus adopted escape observation, it becomes a habit, and the diseased muscles grow weak, while those which receive the additional work become so strong that they retain the limb or joint in the assumed position, and thus lameness is established, to be removed only by severe remedies.

Children are apt to accustom themselves to use the

left hand more readily than the right, and so become what is termed left-handed. Left-handedness is always a mark of careless nurture, for no species of imperfection may be so easily guarded against. When the child begins to use a spoon, or to handle any object, let care be taken to make it use the right hand chiefly, and also accustom it to shake hands only by that hand. By these means it will soon learn that the right is the proper hand to employ, and in this respect will grow up faultless.

The tricks contracted by children create unexpected evils. It is by no means unusual for them to stuff substances up their nostrils, or into their ears, producing tumours and deafness, or rupturing some of the smaller vessels of the nose. All habits which distort the features (as, for instance, over-distension of the mouth by using too large a spoon, or otherwise) are better checked in their earliest manifestations; they are not only disagreeable to witness, but they confer an unpleasant impression on the countenance. All persons are influenced by physiognomy, and there can be no doubt that the preservation of the graceful forms of feature, so often found in children, ranks among the duties of a mother. The doing this does not cultivate personal vanity; self-respect demands a certain care of the person, and this care naturally extends to the avoidance of every habit destructive of general propriety of appearance.

It is of great importance in rearing children, to *prevent* all physical calamities; but as this is not always possible, the next important step for parents to adopt is a speedy and judicious employment of remedies. Mechanical contrivances are found very effective in restoring the strength and shape of the limbs. Their application, though apparently distressing to the patient, should be persevered in, upon the principle that any suffering they inflict is short and trifling in comparison with the unceasing trouble, ill health, and helplessness, entailed by lameness. Steel and leather bandages present a disagreeable appear-

ance, but as the mother knows their utility better than the child can do, it is her part to set an example of patient fortitude. And while she soothes the patient, she must be careful that her tenderness does not weaken the power of endurance; nor must she resign the control which is not only necessary to the moral welfare of the child, but to his bodily restoration.

Curvature of the spine is the most frightful of all distortions. The danger to which the spines of infants are liable, arises chiefly from carelessness or ignorance on the part of their nurses. Hurts from a fall or blow have often serious consequences, but these are sooner discovered than the slow but unceasing destruction proceeding from bad nursing. A child who is constrained to keep the same position for more than a few minutes, who falls asleep while carried erect, who is wearied out by irregular hours, is always in danger of loss of health. It depends upon the nature of the constitution what form the evil takes. Paralytic disorders of the lower limbs of children generally proceed from some spinal affection. When disease of the spine affects a child who has been able to walk, the loss of the use of the legs is gradual, though not very slow. He at first complains of fatigue, and is unwilling to move about, and soon after frequently trips and stumbles, although there is no impediments in his way. In attempting to move briskly, the legs involuntarily cross each other, and he frequently falls; while in trying to stand erect, even for a few minutes, the knees give way and bend forward. As the disorder advances, the child can with difficulty direct his feet to any precise point. Where children have not begun to walk, there is debility in the lower limbs, which forbids their use.

Two striking instances of deformity, occasioned by hurts of the spine, have fallen within our own observation. In the first, the child had crept under a pianoforte, and, on returning from beneath it, rose before he had cleared the edge of the instrument. He struck the mid-

dle of the spine, and in a few years became hump-backed to a deplorable extent. In the second case, a child who had just acquired the power of running alone, was placed on his feet suddenly and violently by his nurse; he cried with pain for awhile; in a short time lost the use of his legs, and ultimately became a cripple and deformed.

Curvature of the spine is not so often found in very young children as in girls of six or eight and upward. It is mostly found to arise from tight lacing, sedentary employment, insufficient exercise and undue mental occupation. The disorder has hitherto mostly afflicted the daughters of the higher classes; but it has been observed of late by an intelligent individual employed in making mechanical contrivances for the correction of distortions, that curvature of the spine is frequent with daughters of small tradesmen and artisans, who, having only one or two children, desire to advance them in life beyond their own class. To this end they laudably and rationally desire to bestow on them what they understand to be a good education. The error lies in the misconception of the term. The girls are spared from active household duties, and sent to school, with the impression that they must study hard. Exercise and fresh air are neglected. The impure atmosphere, the hard narrow benches of the school room, and the stooping position assumed in writing, ciphering, and needle-work, together with the long hours passed at the pianoforte, add to the probability of injury. On leaving school, the tight lacing is increased, and this necessarily forbids sufficient exercise. In many cases, girls on leaving school are apprenticed to some business, where they ply the needle from ten to twelve hours daily, with an interval of an hour for dinner, and half an hour for tea. Parents will do wisely to consider how far the welfare of their daughters is likely to be advanced where the risks of disease are so great.

A defect, however slight, should never be regarded as too insignificant to deserve attention; neither should a de-

formity or malformation be looked upon as incurable, till time and experience have proved every endeavor useless. It is quite certain that much may be done by mechanical means, and it is equally so that care and attention will prevent the further progress of a distortion, even if they do not remedy it. Facts are more convincing than arguments. A delicate girl of six years of age falling into weak health, her parents observed that one of the vertebræ of the neck started out beyond the rest. This was attributed to general debility, and change of air, with increased nourishment, was adopted. Notwithstanding these measures, the other vertebræ of the neck gradually curved outward, the chest contracted, the head leaned forward, and growth was apparently stopped, while the general health became so materially worse, that death seemed inevitable. The probable effects of mechanical aid had been overlooked or deemed hopeless; although four years had elapsed since the first symptom of distortion was observed, they were now resorted to. The child was laid upon a mattress, with weights attached to the neck and around the body, so arranged as to keep the whole person elongated, and the chest expanded. At the end of five weeks there was an alteration of form sufficient to justify the hope that if the child's health improved, the deformity might be greatly, if not wholly, overcome. At present, the general health is in a better state than when the child was first placed on the mattress.

A premature use of the brain in childhood is a fertile source of weakness and disease. Precocious children generally die before they attain maturity, or dwindle below the ordinary standard of intellectual power. Precocity is frequently the result of disease. Wherever it is manifested, parents will do wisely to repress the love of study, and to encourage bodily exercise. The brain, during infancy and childhood, is very soft, and almost liquid under the finger, yet supplied with more blood in proportion to its size than at any subsequent period, and conse-

quently highly excitable. The nervous system is connected with the brain, and is early developed; it is the source of all vital movement, and gives energy to those actions which tend to the growth of the body. When growth is rapid, as in childhood, there is a great draft of nervous energy upon the brain. If, therefore, the mind is worked much at this time, a deficient supply of this energy is sent to the frame, and, as a natural consequence, the progress of growth is checked. The disease called rickets is often attended by a premature development of the faculties; the brain is particularly active; and, if such activity be not checked, there can be little hope of recovery from the disorder, inasmuch as the use of the brain tends to exhaust the vital powers. The same reasoning applies to all other diseases of the bones, and plainly shows that, to insure the perfect physical development which nature intends to prepare during childhood and youth, the brain should have but a comparatively small amount of labor.

It is the opinion of many men of high medical celebrity in this and other countries, that no intellectual labor, no *study*, should commence till after seven years of age, and that a contrary course injures the body, while it affords no permanent benefit to the mind. Much may be learned without study. As this subject will be reverted to, it is only necessary to repeat, that, where there are original delicacy of health, predisposition to disease, injuries from accident or undefined causes, the brain must be employed sparingly, and never fatigued or excited.

Healthy children are continually in motion, ever changing their position and amusements. A few minutes' steady attention to one object is all that ought to be expected until seven years of age are attained; and where there is delicate health, this freedom of mind and body ought to be continued longer. Dr. Arnott observes: "To the well being of the higher classes of animals, exercise of their various parts is as necessary as their nourish-

ment; and if it be withheld by any cause during the period of growth, the body is often crippled, or at least never acquires its due form and proportion. The sedentary employment of girls, and the unfortunate notion that all active sports and exercises are indecorous, occasion early weakness of the body, especially in the back. To remedy or prevent this, strong, stiff stays are put on at an early age to support the back, as it is said, but which, in reality, by superseding the exercise of the muscles intended by nature as supports, cause these to lose their strength, so that when the stays are withdrawn, they are unable to support the body."

The constant change of position which children adopt, is evidently to give alternate exercise and repose to the muscles. To sit still and upright, is really painful to them; left to themselves, they rarely carry their exertions beyond the point of healthy fatigue; and as soon as they feel this, they spontaneously throw themselves on the floor to obtain the necessary repose. It is not the *doing* this, but the *way* in which it is done, which constitutes indecorum; and it is this point whereon a mother's instructions may advantageously be given.

The ill health or temporary ailments of children often prove a source of moral evil to the sufferers. Indisposition renders them fractious and impatient; the indulgence of violence or fretfulness necessarily impedes recovery; and to avoid arousing these feelings, parents often humor and coax their children. Additional tenderness and unremitting attention are necessary from the mother or nurse; but these may be afforded without the slightest relaxation of moral discipline. The control of the parent is as needful in sickness as in health. An ailing child is often a spoiled child; expecting the gratification of every whim, and yielding to alternate fits of violence or peevishness. A sick child is but too often persuaded or deceived into taking medicine, when he should be directed by the calm, honest steadfastness of a parent's authority. If he

once obtain the victory, or has reason to suspect himself imposed upon, he will become unmanageable, or meet deceit with deceit. The observance of the duties of obedience during illness is no source of pain, but produces that calm reliance upon the sense, affection and power of the parent, most favorable to recovery. To these remarks we may add, that the severity and coercion necessary to restore a convalescent child to the good conduct which needless indulgence in sickness has disturbed, produces more misery than any rational firmness to control the invalid can inflict.

STAMMERING.

The organs of speech are, with rare exceptions, perfect, and calculated, by proper nurture and example, to perform correctly their assigned office. In the first efforts to speak, the child is a mere creature of imitation, and will acquire a tone and habit of utterance in conformity with those of his instructors. It is, therefore, of importance to avoid all improper modes of speaking before children, and in particular to keep them from acquiring the habit of stammering or stuttering. This defect in speech, beside being rapidly caught by imitation, sometimes arises from fear, eagerness, or violent passion. A child whose ideas succeed each other very rapidly, is often unable to express himself quickly enough, and utterance is impeded by his own energy. When the trick of stammering has once begun to take place in a few words, it will extend itself to others, and particularly to all the first words of sentences, because then the organs pass in an instant from inactivity to action. The propensity to stammer, from whatever cause it proceeds, should be checked on its earliest manifestation. The person addressed should refuse to attend until the child speaks slowly, and with care. The moment he begins to hesitate, he should instantly be made to cease from speaking, and then to recommence with deliberation. If these precau-

tions are not sufficient, let the child, for a few minutes at a time, and frequently in the course of the day, repeat the vowels in a firm, strong voice, and afterward the consonants, singly, and variously combined with the vowels, and occasionally a few sentences fitted to his intelligence.

Above all things, patience is necessary. If, as is most probable, the child is nervous and irritable, any treatment increasing these feelings will also increase the propensity to stammer. Stammering is often caught by imitation. The means recommended above will best put a stop to a habit so acquired. To reason with, or forbid the little mimic, is not likely to quell the active propensity.

Stammering sometimes arises from any nervous disorder of the muscles of speech, particularly a spasmodic affection of the glottis, or narrow opening at the top of the windpipe, by which the air passes to and from the lungs. It is difficult to say how far young children may be affected by such disorders; but, however this may be, attention should be paid to strengthening the frame generally, while every means should be taken to acquire perfect articulation. It has been suggested by Dr. Arnott, that the glottis, during common speech, need never be closed, and if it be kept open, stuttering is avoided. In humming or droning any simple sound, like *e* in the word *berry* (to do which at once is no difficulty to an habitual stutterer), the glottis is opened, and the pronunciation of any other sound rendered easy. If, in speaking or reading, the stammerer joins his words together, as if each phrase formed but one long word, or nearly as they are joined in singing, the voice never stops, the glottis never closes, and there is no stutter. Stutterers often sing well, without the slightest hesitation, for the glottis opens to emit the tone before the words of the song are pronounced, and does not again close. They also declaim and read poetry well, the uninterrupted tone being almost as great as in singing. Many persons speak in a drawling tone, and often rest on the simple sound of *e* mentioned

above; saying, for instance, "e, I, e - - -, think, e - - -, you may, e - - -;" the sound never ceasing until the end of the phrase. A stutterer adopting such a manner, would overcome his defect, and be no more remarkable than any other drawling speaker.

If the simple means first recommended be not sufficient to check the early habit of hesitation, it may be supposed that there is some spasmodic affection of the glottis. With children the cure of stammering must be pretty much a matter of imitation; they can not understand the causes of their difficulty, nor the means of removing it, but if the mother assume the drawling mode of speech, recommended by Dr. Arnott to the adult stutterer, and the child can be brought to imitate and adopt her manner, it is fair to presume that the effects will be the same.

The broken English of infancy is so engaging, that parents are generally unwilling to correct it. Mere infantine mispronunciation requires no such sacrifice. Indeed, it would be wrong to attempt to improve it, since the child's temper would thereby suffer; but there are errors which ought to be contended against at first, such as the hesitation already remarked, lisping, and the inability to sound the *r*. In order to overcome these defects, the mother should first ascertain by what actions and positions of the lips, tongue, palate and throat, she herself produces the various simple and compound sounds which constitute the elements of speech; then transferring her observation to the child, discover how the organs are misemployed. For instance, lisping is chiefly the substitution of *th* for *sh*, in which case, the tongue is thrust loosely forward against or between the teeth, thereby stopping the transmission of breath through them, instead of being kept back rigidly in the mouth, and the breath forced over it, through the teeth. The pronunciation of the letter *r* requires the tongue to be first put forward, and then drawn curlingly back, by raising its tip to the palate. If the latter action be missed, the necessary vibration is

omitted. *R* is sometimes pronounced like *l*, in which case the tongue goes at once to the palate, instead of being first thrust forward to produce the vibration. A small degree of care on the part of the mother or nurse will remedy these defects of utterance.

It is hardly necessary to offer any comment upon the importance of possessing a distinct articulation, free from any defects. The following passage from an eloquent writer will best advocate the cause, if, indeed, advocacy can be needed: "Speech is one of our grand distinctions from the brute. A man was not made to shut up his mind in itself, but to give it voice, and to exchange it for other minds. Our power over others lies not so much in the amount of thought within us, as in the power of bringing it out. A man of more than ordinary intellectual vigor may, for want of expression, be a cipher, without significance, in society. And not only does a man influence others, but he greatly aids his own intellect by giving distinct and forcible utterance to his thoughts. Our social rank, too, depends a good deal on our power of utterance. The principal distinction between what are called gentlemen and the vulgar, lies in this: that the latter are awkward in manners, and are especially wanting in propriety, clearness, grace, and ease of utterance." It is, therefore, for mothers to lay the foundation of the benefits to be derived from this "power of utterance." Where the articulation is faulty, the expression of ideas, however admirable they may be, will be ineffective, if not ludicrous.

SQUINTING.

The eyes of an infant are for some time very weak, and can scarcely be said to be obedient to its will or inclinations. The mind being yet inert, the organs of vision roll about, as if by instinctive impulse. While in this unregulated condition, the two eyes may occasionally be observed to look different ways, or perhaps both

inward toward the nose. These affections, which arise frequently from the desire to look toward the light, or toward any object which captivates the infantile curiosity, should be in all cases checked, by simply holding the hand over the eyes, so as to cause them to shut, and assume a proper direction on being opened. So extremely liable is the child to squint in its vision, that this will sometimes require to be performed several times in a day.

As the strength of a child increases, so does its power of vision; nevertheless, the mind being uninstructed, the eyes will continue for some time liable to derangement. Light shining always from one side, or the placing of a knot of ribbon over one eye, will lead to a habit of looking obliquely, and therefore all such causes of derangement should, as far as possible, be avoided. The infant must be guided in its efforts to look, as well as to speak. It should be held fairly toward the light, or toward any bright object, and at such a distance as will accommodate the focus of its vision, and cause it to use both eyes alike. The habit of looking obliquely either with one eye or both, is that which has to be chiefly guarded against, and corrected when it occurs. Obliquity of vision may arise from natural defects, but that is seldom the case; in almost every instance squinting is a result of sheer carelessness of the mother or nurse.

When the child's faculties are advanced, it may acquire a habit of looking with one eye, while the other is kept shut. The effect of such a habit being to strengthen one eye unduly, and weaken the other in proportion, it should be promptly checked; which may be done by covering the strong eye, or that which is always employed, and confirming the use of the neglected eye. By this means the muscles of the latter gain strength, and acquire the power of directing and adjusting the eye. The time necessary for the cure depends upon the inveteracy of the habit, the length of time that the muscles have been left to themselves, and their consequent weakness—for it

is with difficulty that muscles acquire an increased degree of action after having been long habituated to a more limited employment. Where the habit has been of short duration, a piece of gauze, stretched upon a circle of whalebone to cover the best eye in such a manner as to reduce the distinctness of vision to an equality, and worn some hours every day, has effected a cure. Instances are on record of a squint being removed by wearing between the eyes a piece of thin metal, which, projecting from the nose, prevents the distorted eye from seeing an object obliquely.

The following mode of curing squinting has been recommended: When the child is of age to observe directions, place him directly before you, and let him close the undistorted eye, and look at you with the other. When you find the axis of the eye fixed directly upon you, bid him endeavor to keep it in that situation, and open his other eye. You will now see the distorted eye turn away from you toward his nose, and the axis of the other eye will be turned toward you. *But, with patience and repeated trials*, he will, by degrees, be able to keep his distorted eye fixed upon you, at least for some little time; and when you have brought him to keep the axes of both eyes fixed upon you, as you stand directly before him, you may change his posture; setting him first a little on one side, and then on the other. When in all these situations he can perfectly and readily turn the axes of both eyes toward you, the cure is effected.

Squinting is sometimes the consequence of any severe illness which has affected the head. In such cases it will probably disappear as the strength of the constitution is restored. It is also brought on by over-tasking the mind with study, or by any cause which exhausts the vital energy of the system. In such cases, no remedy can be effected unless the cause be removed.

The following case is quite worthy the attention of parents. The facts have never before been printed, but their verity is undoubted:

A healthy boy, when about four or five years of age, contracted a habit of squinting with one eye, and so suddenly, that his parents at first supposed it was brought on by his having imitated some person who labored under the defect. This, however, could not be ascertained, and the habit continued to increase. Medical men were consulted, and various mechanical contrivances applied, but with no effect, except, indeed, that the weak eye grew worse, and the other became affected, though in a less degree. One surgeon recommended a course of alterative medicine; but as the general health of the child was undisturbed, the parents were unwilling to try such an experiment. The boy could read well for his age, and was generally intelligent, but books were now prohibited, and he was restricted from looking at small or near objects, as the squinting was always thereby increased. The father of the child, after repeated investigations, came to the conclusion that the antagonist muscles were not strong enough to keep the eye in its proper position, for the sight of both, when used separately, was quite sound. The cure, therefore, could only be effected by strengthening these muscles, and he proposed to confirm the whole muscular system, as well as give power locally. To this end a regular course of gymnastics was adopted, superintended by the father himself, and proportioned to the age and power of the child; he was well fed, kept a great deal in the air, restricted from study, but instructed orally in subjects suited to his age and capacity. He was also made to shut the eyes alternately, and to look straight forward at an object, and outwardly, with the unclosed eye. Every morning, on rising, winter as well as summer, a pint of the coldest water was dashed upon the temples, and in the warm season a shower bath was added. He was also encouraged to catch a ball daily.

For some time little or no improvement was perceptible; the perseverance of the parents was unrelaxed, and at length a gradual amendment became apparent, but of no

permanent kind, for at the end of two or three days the eyes would relapse into the original state, and then rally again. The plan was not, however, given up or neglected, although if any accidental omission of any of the remedies (particularly the gymnastics) occurred, a change for the worse was immediately visible. If the child had cried, was reprimanded, alarmed, kept in the house in consequence of bad weather, or did not go to bed till after his usual hour, the squinting invariably and immediately became worse. At the end of about eighteen months the boy was capable in some degree of controlling the action of the eyes; and as he became aware of this power his own endeavors to overcome the defect were added to the energetic attention of his father. Four years elapsed before the defect could be considered cured, and even after this time, indisposition, mental excitement, particularly of a painful nature, want of strong exercise, or over-fatigue, occasioned a slight temporary wavering of the axis of the weaker eye.

Parents will not fail to perceive, from the instance above cited, that perseverance, and even fortitude, are required on their part, and unremitting personal attention, in whatever circumstances of life they may be placed, if they would overcome the physical defects of their children. Above all things, it is desirable they should be impressed with the possibility of a cure, and that the advice and attendance of a medical man, to be of any avail, must be seconded by *themselves*. Again, docility and intelligence on the part of the afflicted child will be needed, and these qualities mainly spring from the training it receives. There is an old notion that, in order to effect any cure, the patient must have faith in the remedy. At first sight the observation appears to be founded in superstition; but on reflection it will be seen that faith not only implies belief, but also the desire to act in accordance with the dictates of belief. Thus, the patient seconds the efforts made by others in his behalf, and remedies are

therefore more likely to take effect. To this state of willingness the mother must bring the child, and nothing is so likely to operate advantageously as her own mild, patient, affectionate energy and attention. Example has its effect, while the influence which it is the peculiar privilege of a mother to establish over the affections and understandings of her children, strengthens the power of her example.

THE INFANT'S OPIATE.

You must not give to babies any opiate—whether it be laudanum itself, or opium, Godfrey, or paregoric. “Drops of death” should be upon the label. You have, no doubt, seen a Bible print which figures “Herod’s murdering of the innocents;” mothers cling in agony around children whose breasts are pierced, and infants struggle in the grasp of brawny soldiers. That was a fearful slaughter; yet it was mercy when compared with the more fearful murdering—the yet more devastating slaughter—among which we daily move.

In Herod’s time there was one day of slaying—in our time there is not a day of rest. Then, death came with one short pang, and mothers struggled to preserve their offspring. Now, children perish with the lingering torments of a poison, and drops of death are poured out to them by a mother’s hand. The sale extends through every corner of the land. If you have administered to your children these destructive drugs in ignorance—or under counsel different from that to which you now, I hope and pray, are listening—there can be no reproach upon your consciences. But from this day there will be, if you refuse now to be warned. The early death of your own children, or the almost inevitable sorrows of their after life, upon your own head be they, if you will not hear advice. According to their constitutions, or the doses which your children have received, some who survive will become idiots; many (reared thus to stimulus from infancy)

will become drunkards; some dull in intellect; all more or less broken in constitution, in mind and body; weaker, and less able to struggle onward in the world than otherwise they would have been. To procure for yourself a selfish gratification, to still the crying of an ill-managed child, instead of seeking to improve your infant's temper by increased attention to the requirements of its health, you go to the cupboard, you take out the cruel dose. Of course the child is still. You sleep the sleep of health; but your child has not the refreshment of repose. You have called death to stand and watch beside its crib, to hold his cold, clenched hand over the baby's mouth, and fix it in a spell for your convenience, until you wake and come to it again.

MORAL GOVERNMENT.

During the first few weeks of life, happiness is solely derived from the healthy operation of the bodily functions. Until the senses begin to act so as to convey impressions to the brain, there can be no pleasure drawn from external circumstances. The activity of the senses, and the enjoyment produced, will be in proportion to the state of the health. An infant who is continually in pain, who is either crying, moaning, or in a state of repletion or of exhaustion from the consequences of suffering, will be but little attracted by the light, sound, or motion which first engage the senses of infancy. In no other instance, perhaps, are the influences of the physical condition so immediate and so evident. An infant, even of three weeks old, will exhibit a haggard, grief-worn countenance, sunken eyes and shrunken face, painful to those whose experience tells them what these signs indicate. But the fair, plump, contented look of the healthy babe, speaks a language of comfort, prophetic of the approaching dawn of intellect. How early does such an infant smile upon its nurse, fix its eyes upon her with a look of awakening

intelligence, when she speaks in accents never addressed but to infancy, and reply with the little dove-like sounds only uttered by the healthy babe! The happiness or misery of this period of life is wholly derived from the physical condition, and the dawns of the sentiments and the intelligence are in proportion to the health.

The general irritability caused by disordered functions, renders the impressions upon the senses even more painful than pleasurable; the disposition for enjoyment bestowed by the feeling of health is denied; the mother's voice, her smile, are associated with pain as much as with pleasure, and the affections are imperfectly and tardily aroused. As weeks pass on, habits form, and instead of a habit of contentment, there is one of fretfulness. An infant so constituted is either reared with an indifference to its continual crying and fretfulness, or with the apprehension which causes its nurse to be continually seeking how she may quiet or prevent its cries. At the age when food alone appeases it, the babe is always eating or sucking; as it grows older, sugar, cake, etc., are superadded, with the addition of noises or rough exercise, and but too frequently some sedative or composing draught, which the mother believes herself obliged to adopt in order to procure the child needful repose, or the servant surreptitiously administers to relieve herself from incessant fatigue. When the time arrives that restraints and guidance should be adopted, the fear of farther irritation by contraction leads to a system of bribes, deceit and coaxing; all the lowest sentiments of human nature are appealed to; and at two years old we have a selfish, willful, ill-tempered child, with violence apportioned to its strength, and intelligence prompted by ill feelings. It is not to be supposed that these moral disorders belong exclusively to bad health. A healthy child may be selfish, willful and ill-tempered at two years of age, if injudicious treatment have cultivated the lower sentiments; but the healthy infant is predisposed to receive happy impressions,

and enjoys the condition called good temper—a term which in infancy is synonymous with good health. The nurse has fewer temptations to mismanagement, and, the affections and intelligence being more healthful and active, moral mismanagement actually produces less permanent injury.

There can not, then, be too much value attached to the physical condition of an infant; to the condition of the parent while pregnant and while nursing, and to the regulation of every particular connected with the health of her offspring. This being the first object, both in point of time and importance, the next consideration is the means of developing the moral and intellectual faculties.

The brain, on which the mental functions depend, is in infancy the least perfect organ. Only a few of the simpler instincts, as the appetite for food, are at first in any degree active. After the child is a few weeks old, he begins to exercise his senses, and the first traces of intellect and feeling are exhibited. But still, and for long after, the brain is in a tender and delicate state, calling for the gentlest treatment. No loud or harsh sound should therefore ever reach the ears of young children; no violent light should be allowed to come before their eyes; they should always be addressed in the softest tones; and nothing should ever be done in the least degree calculated to frighten them. These are the chief particulars of treatment which we are called upon to attend to, with regard to the mental system of children, during the first few months. Opposite conduct is apt to produce serious damage, and that of a very durable nature. There are particular cases and circumstances in which the value of kind and gentle treatment is greater than usual. Perhaps the infant may have derived from nature a constitutional irritability; or he may be accidentally pained by some derangement of his system. In these cases, caresses, gentle changes of position, and lul-

ling sounds and movements, are of great consequence; while all loud singing, talking, and rough and sudden jerks, should be avoided.

For farther progress in the moral management of infants, it is in the first place necessary to bear in mind that the mental faculties, in their various degrees of natural strength, rest at first undeveloped, but ready to be brought into activity in accordance with the respective circumstances which are naturally calculated to stimulate them. All of these faculties are designed for useful purposes, under the guidance of reason and moral principle; but it may so happen that some of them are naturally in very strong activity, or are called into great force by the circumstances with which the individual is surrounded, so that the character may ultimately be of a very irregular and uncontrollable kind. In moral education, it ought to be the first object of a mother to put the more lively faculties of her infant under proper regulation, or restraint, if necessary, and so to evoke and train the rest, that, in the result, she may have the best character which nature admits in that case.

Practically, the circumstances by which the infant is surrounded, are sufficient to serve the whole end in view, as far as very young infants are concerned; for it is clear that, if a child, for example, be brought up in a scene where angry words are never heard, and where nothing of an unduly irritating nature is allowed to visit him, his own angry feelings, though strong naturally, must be in a great measure kept out of exercise, and consequently weakened; just as the same circumstances, by their soothing and pleasing nature, are likely to have an active and positive effect in bringing out his own kindest and softest feelings. In like manner, supposing that a child may have a strong natural tendency to secretiveness, and that he never witnesses or hears from those near him any thing but the most perfect candor and directness, his tendency is just as liable to be kept below the point at

which lying and deception take place, as his opposite feeling in behalf of truth is likely to be positively encouraged. ♥

The first duty, then, is for the mother to be and to do on her own part, as she would wish her child to be and to do; and to accommodate all other circumstances, as far as possible, to the same end, particularly as regards the selection of attendants. She must be on her guard against the delusive notion that an infant of a few months old is not capable of being affected by the conduct of those in whose arms he lives. Though unacquainted with words, he is perfectly alive to what may be called the natural language of the feelings, as harsh looks, loud and sharp tones, or the reverse. At three months the smile of his mother elicits from him an answering and sympathizing smile; and at the same age an angry gesture will frighten him. And not only is he sensible of language of either kind addressed to himself, but also of what is addressed to others. An instance is on record of a child falling into fits in consequence of a violent altercation between his nurse and another person, which took place in his presence. An infant may possess such gentle dispositions that he will contract no disposition to quarreling from seeing his elders always doing so; but this is a mere chance. The dispositions may naturally have a strong bent that way, and he will then be, as it were, in the very school calculated to make him a thorough quarreler. The more perfectly that the home of infancy is a home of peace and love, the chances are unquestionably the greater that the children will grow up creatures of gentleness and affection.

The earliest intercourse between a mother and her child is carried on by means of the expression of the countenance and the *tones* of the voice. The first language of an infant is the language of *signs*; these are at first involuntary, and indicate his wants and sufferings. After some time he begins to be sensible of the existence of

external objects, and to distinguish his mother's face from that of all others. In this face he reads his first lesson. The child ascertains that there is one who takes constant care of him, to whom he can make known his wants and wishes. He looks, and she understands; he cries, and she hastens to his relief. He improves daily in the use of a language which he finds is intelligible to her, and becomes at length a little master of pantomime. He sees, too, that she looks differently at him, at different times, and that the tones of her voice vary, indicating pleasure, pain, approbation, and reproof. Thus, long before oral language is used, the mother and child have established a symbolical language of the countenance and tones of the voice, to which, if the child is sprightly, and the mother has a tact for it, *gesticulation* is added. The mother has, perhaps, used this natural language unconsciously, but she may do much to improve and refine it, and to extend its use in the development of the moral and intellectual powers of her child. Expression of countenance adds greatly to the force of speech; and as it is subject to the will, it can be cultivated and improved.

A mother should take care that every feature, look and movement, corresponds with her feelings, and this without affectation. *Let her feel as she ought*, and then endeavor to *look as she feels*. Let her, when the occasion calls forth the corresponding feeling, cast upon her child a look of pity, of sympathy, of consolation, of composure, of interest, or of playfulness, giving to each a distinct character, while her habitual expression should bear the stamp of gentleness, patience, cheerfulness and hope. When government and discipline are necessary, let the countenance exhibit authority, decision, firmness, disapprobation, and a determination to be obeyed, mingled, however, with entire composure and self-possession.

In infancy and childhood the muscles of the face, which give it expression, are exceedingly pliable, and yield an almost involuntary obedience to the emotions and opera-

tions of the mind. In addition to the care which mothers should take to preserve a command over their own features and tones of voice, it is important that the same care should be exercised over the children themselves. By these means much may be done to mould the features into forms indicative of virtuous emotions. Habits of expression have a powerful influence upon the internal feelings. A smile, even if produced with effort, will assist in calming angry emotions. There need be no hypocrisy in this. We adopt various methods of self-control, and effect that by *indirect* means, which we find by experience *direct* efforts of the will can not accomplish. The effort to control our features aids us in subduing internal emotion. This principle may be perverted and applied to the worst purposes, for all that is good is subject to abuse. The child who is early habituated to avoid disagreeable, sullen, fretful and unkind looks, and whose affections are at the same time cultivated on sound principles, will have additional security given to the exercise of these affections, and a power of subduing contrary feelings, wanting to the child over whose features and modes of expression no such discipline has been exercised.

Great pains are often taken to cultivate the manners, and to give them an air of courtesy, respect and kindness. The tones of the voice, articulation, pronunciation, and modes of speech, are made matter of early instruction. There is no doubt that all this has an influence in moulding the intellectual and moral character. The various expressions of countenance are as susceptible of control and discipline, and react on the mind with as great a force. They should therefore be formed into habits as well as the manners or the voice, for there can be no greater danger of offending against nature and simplicity in the one case than in the other.

The effect of these principles is fully seen in the change which takes place in the countenance of an uneducated deaf mute, after he has enjoyed a few weeks intercourse

with his companions in misfortune in an asylum. His features, expression of countenance, and general deportment, undergo a wonderful transformation, and seem to acquire a new power. Catching by imitation the spirit of those around, they become instruments for the expanding mind to employ, and have no small degree of influence in forming habits of thinking and feeling.

It is neither necessary nor desirable to school children into studying the expression of their features. As their violent emotions should be repressed, so every expression of that violence, whether shown in voice, feature or gesture, should be gradually checked; not thrown back to be indulged silently and in concealment, but in infancy, by the mother's calm expressions of pity, regret or condemnation; and in childhood by the same means, strengthened by rational appeals to the good feelings. A glance of the mother's eye is often sufficient to deter a child from error, a gesture to recall former advice, a word to overcome resistance or soften rebellion. This power must have been established from the first.

However much the gift of personal beauty may have been misused, and although it be confessedly secondary to moral and mental beauty, yet the charm of an agreeable and expressive face can neither be denied nor unfelt. Young children generally possess this charm; and if it do not remain in after years, it may be because the indulgence of bad passions or bad habits have marred it. It is obviously the mother's duty to preserve the best gifts of nature, and to endeavor that the pure affections, lively intelligence, and gentle sympathies they seek to cultivate in their children, should speak in their countenances as well as in their actions.

For some time a child is content to enjoy the sight of objects, but growth and increasing strength apparently inspire the desire to touch and to grasp. The efforts to do this are for months uncertain and imperfect; there is no knowledge of distance or size; the infant reaches too

far, or not far enough; too much on one side or the other; and when the hand accomplishes its intention, it has no power to hold or grasp the object of desire. Next comes the wish for possession. All who have observed the early manifestations of infancy, know that a child is not satisfied to touch or take hold—it wants to *have*. No matter how unwieldy the object, possession alone will satisfy. The gestures accompanying these desires are animated in proportion to physical strength and energy; the infant leans forward, stretches out its arms, kicks its legs about, sometimes with a little straining scream, not, however, of anger, but of anxious expectation. The cry of anger comes when the object can not be obtained, or when it is suddenly removed.

Disappointment and vexation being expressed by the same means as bodily pain or hunger, it is not improbable that the attention which such manifestations have procured, leads the child to expect that crying will obtain all its desires. This impression should be removed, and a contrary lesson impressed. First, the infant should not be allowed to have what it cries for; and as the countenance and manner of the mother have been the means of awakening happy emotions, so they should express concern at the evidences of impatience. If the child desires an object which it may touch, the wish should be granted before it grows into irritability, yet not in such haste as to preclude a small exercise of patience and forbearance. Instant and constant attention to the wants and wishes of children renders them exacting, violent, or fretful, and will even engender a love of command and impatience of control quite inimical to obedience. Playful notice, while the child waits, will at first serve to restrain irritable feelings. It is too much to expect an infant to await its gratification with no other occupation than expectation. This comes when time and habit have confirmed the certainty that the mother *will* attend to the wishes of the child; reliance upon her, and confidence in her love and truth,

tending to confirm serenity of temper. The influence of love fosters the best feelings. Love is our moral sunshine. An infant who is always surrounded by kind looks and gentle voices, not only imitates what he sees and hears, but all his emotions are of that happy character which inspires kindness. As months and days increase, his sources of happiness increase; he is prepared by his own physical comfort and the affection he experiences, to look upon every new object with confidence and cheerfulness; anticipating nothing but benevolence, he welcomes every body and every thing with gladness. Constitutional timidity is checked, and a habit of contentment formed.

An infant, when once excited, often continues to cry after the exciting cause has ceased. To change the nature of the emotion, should be the object; and where every thing is new and unknown, this is sufficiently easy. A pleasing sound, a bright object, will often suddenly put an end to a fit of anger. To prevent irritating circumstances is still more important. Uneasiness, however trifling the cause, disturbs peacefulness, and it is from peacefulness that cheerfulness and good temper spring. When the feelings are thus prepared, trifling annoyances are, after awhile, more patiently endured; and as intelligence appears, there is a greater readiness to observe, and to derive happiness from external objects. Differences of temperament are early manifested; excitable natures must be moderated by calmness and gentleness; sluggish natures excited, yet never with violence. A fat, quiet, white-looking child, may give little trouble, and this condition is therefore called sweet temper; but it is quite as nearly allied to insensibility, which must be shaken off by the activity of the parent; otherwise, selfishness, and a love of whatever contributes to selfish pleasures, may spring up.

A young infant requires constant attention; but as time goes on, enough of this may be given, although the child be left (or apparently left) to itself. Thus, at a

tender age he acquires a species of independence, namely, that of finding happiness in himself and for himself. A babe of six weeks old, awake in his bed, is preparing for this independence; at ten weeks he will have fixed his eyes upon some attractive object, perhaps upon his own moving fingers, and he is happily occupied. At a later period, when he can sit in a chair, or on the floor amidst his playthings, he will require the watchful glance of the mother, and occasionally a word or a little help, to assure him of her presence and sympathy. If the child be inactive and dull, then he will need to have his powers of observation frequently addressed and kept alive; but an excitable child is best left to wear out the liveliness of his impressions upon a few objects, without interruption or any other stimulus than that which is innate, or aroused by the objects themselves. An infant with lively feelings and quick perceptions, is more likely to be impatient and violent than one of slow perceptions and deficient sensibility, and will need a counteracting, rather than an exciting power. He should not be hurried from feeling to feeling, and from object to object, but encouraged to dwell upon one.

Every office performed for a child should be done with gentleness and care. When carelessness pervades the general management, the child must be continually uneasy; he consequently gets the reputation of bad temper, and is deprived of those kind influences which can alone foster goodness. The close connection between physical comfort and moral development, ought never to be overlooked. Perhaps the most difficult part of infancy is that in which the want of speech is felt, but without the power of utterance. The intelligence is often great; the sentiments active; wishes and wants are intensely felt, but the means of expression are imperfect, and often unintelligible. The more intelligent the child, the greater is the probability of violent emotion following the unsuccessful attempt to understand and be understood. This is the time when

the mother's influence, and the experience she has gained of her child's character, will come into use. A child who can not make himself understood, usually screams; it is in vain to attempt to silence him by giving him something that he does not cry for; neither will any good purpose be served by talking to him while crying. While violence is at its height, calmness and silence are the best re-proofs. Beside, when a child is screaming, the voice of the mother must be elevated to loud or shrill tones, in order to be heard; such sounds can only be associated with scolding, or with a noisy mirth, ill fitting the feeling with which she should witness violence. The object is to show that screaming is of no avail, and that some better means must be adopted to express and obtain its wishes; there will be many bursts of anger before this is effected, but no evil need be apprehended. While the mother is firm and calm, the child will not cease to love her, but, on the contrary, her aid will be felt upon this point quite as much as in matters of bodily suffering.

It is not unusual for a child so treated, to soften into tears of real grief on finding that his mother's countenance looks sorrowful, and so to forget the cause of his excitement. It is always better for the parent and child to be alone together during such scenes. A child of a year old, when crying with anger, will often look round on his observers with an air of defiance or determined resistance; or, conscious that they have no sympathy, relapse into stubbornness. However erring, he should at no age feel that he has lost his mother's sympathy; and, on the slightest evidence that grief has succeeded to anger, she must be ready to encourage and to aid. A shake of the head, a firm but gentle *no*, silence, or placing the child in solitude, will sometimes calm the passions; but this must be cautiously tried, lest it cause terror or greater violence. It is an error to induce children to cease crying by promising them what they want as soon as they leave off; for if they can understand the words,

"When you have ceased crying, I will give it you," they can quite as well comprehend, *"You can not have it, because you have cried;"* but when anger has subsided, amusement must be provided, so that the child shall not relapse into fretfulness; the object being, not punishment, but to show the child that violence will not obtain its wishes. It is difficult to discover how children acquire the power of interpreting language, but they do so long before they can use it. Tone of voice, and expression of face, assist considerably; strangers, particularly when not accustomed to children, being rarely understood by them. It seems desirable to accustom a child to listen to a few words from the mother relating to familiar objects or persons, or to some of his own actions, that he may be habituated to comprehend, or at least to endeavor to do so; and he might be questioned by words and signs, so that he shall reply by gestures, and by such sounds as he is able to utter. As the violence of this period of childhood arises so much from want of language, pains should be taken by the mother to establish between herself and her child some means of communication that will smooth the difficulty.

Constant warnings, threats, or entreaties, have a most pernicious effect, when the obedience they would obtain is not insisted on. The child, becoming accustomed to them, ceases to regard them, and imperceptibly discovers that words do not really mean what they pretend to convey, and thus a disregard for truth is first taught. When a prohibition is given, it should be adhered to; it will be necessary to repeat it many times, because the tender mind can not be expected to retain ideas, which may immediately influence conduct; but the repetition must be made seriously and patiently, not by an angry ejaculation or reproof uttered in haste and irritation. The oft repeated "let that alone," "be quiet," "don't do so," "how naughty you are," only conveys that something is wrong; no impression is made except one, character-

ized by some annoyance felt equally by both parties; and no fixed and definite experience is obtained.

A mother should always endeavor to ascertain what qualities or tendencies are most injuriously active, and, as far as possible, suppress them by a gentle course of treatment. At the same time, she should observe what are the weakest points of character, and if these belong to the good qualities of the mind, let them be cultivated and exercised with all the diligence which she can command. For example, if the child incline to be destructive, by breaking toys, killing flies or other small animals, abusing his companions, and so forth, it is of importance to check and suppress this dangerous propensity, and to rouse into activity benevolence and gentleness of manner in its stead. If the child show a deficiency in any useful quality, as memory, language, power of observation, and so on, these should be frequently exercised, because exercise strengthens; and the longer that the exercise is continued, the power of performance becomes the more easy and agreeable. In a word, *check bad propensities, encourage good ones*, and in either case with gentleness and moderation, according to circumstances.

It is important to recollect that the vicious or disagreeable tendencies of children are at first weak, and in most instances may with little trouble be remedied. But as the disease is superficial, the corrective should be light. It should be the object of the mother to prevent rather than to cure. If she keep her child from evil communications—that is, associating with persons, old or young, who are likely to sully the infant mind, and nothing is more easily done—she will be spared days, weeks, perhaps years of toil, in eradicating the mischievous tendency which has been excited. But in the worst circumstances that may arise, do not on all occasions oppose and correct. The child should not be aware of your intentions to correct it systematically, for he soon discovers he is to be thwarted, and is as ready for combat as his opponent. In this man-

ner, injudicious correction has spoiled many children, who might otherwise have been the pride and solace of their parents in after years.

Cleanliness, order, and general propriety of demeanor, are to be ranked among moral virtues, and their foundation is to be laid in childhood. Parental example will do much, whether manifested in the observance of regular hours, of neatness, delicacy, genuine courtesy, and the ease which always accompanies true refinement. Children can not be taught what is termed manners, without rendering them affected and insincere, for these are usually artificial and conventional; but they may be practised in the true elements of politeness, namely, self-respect and a delicate regard to the rights and feelings of others, in contradistinction to the mere desire of admiration, or the selfishness which has no regard for opinion, and which only prompts to individual gratification.

It is desirable that children should observe a cleanly and delicate method of eating and drinking. While they are too young to feed themselves, their food should be given them with attention to neatness and comfort. As soon as they can assist themselves, continued care will be necessary to accustom them to the use of the spoon, fork and knife, and also to arrange the food on the plate, so that it may be eaten with attention to the method usually observed; the meat, vegetable and bread following each other in regular succession, with a proper proportion of salt. Drinking or speaking with the mouth full, putting the fingers into the plate and mingling the food, should be checked at first.

Conduct at table is also worthy of attention. Children are often inclined to play with the different utensils, and so to break or overturn them; this habit, with that of reaching for what they require, putting their elbows on the table, sitting awkwardly, and other uncouth demeanor, often interrupt the comfort of the family meal. A love of order is so natural to some children, that any change

from their customary routine, or in the usual place of the different objects around them, has been known to excite them to anger or tears. There are other minds, however, in which a love of order must be created.

Mutual confidence should be a governing principle in the communion between parent and child. This can not exist where the former acts only as a judge and law-giver, who acknowledges no compassion, no sorrow, who can not weep and hope with the offender. The few words, "I am sorry that you are angry;" "Try to be good, and I will help you;" "Wipe away your tears, and let me hear what vexes you," are more likely to overcome error, or turn away wrath, than stern commands or cold disapprobation; for this treatment does not conceal that there is error, or disguise its evils, while it differs totally from the compassion which fondles or coaxes, and bribes a child to soften its violence or withdraw its opposition. Are there not moments in the lives of all, when a confession of error to a friend whose sympathy, consolation, and encouragement, are certain, lessens the bitterness of self-accusation and confirms good resolutions? Are there not also moments when the want of such a friend, or the reproaches and cold contempt of those who possess a right to condemn, hardens the heart, and converts a wavering repentance into dogged perversity? If, then, at an early age, when experience and self-dependence are so influenced by the denial of sympathy and the administering of stern reproach, how much more must the tender buds of infantine feeling be nipped and withered by the chilling frosts of severity! Nothing can be more beautiful than the conduct of a child reared under the influence of love. It enters among strangers unabashed and undismayed, ready to welcome and be welcomed, seeking happiness, and prepared to find it in every thing, and with every body; so willing to be pleased, that every gratification, however trifling, is prized and enjoyed; habituated to cheerfulness, yet so full of the sympathy it

has so largely enjoyed, that, however gay, it does not lose sight of the comfort or sorrows of others; however amused, there is no selfishness in its enjoyments; the mind is active and energetic, and the whole character beaming with intelligence and happiness.

Reverse this picture, and see the child who has been governed by fear—a suspicious, timid glance, an endeavor to escape observation, no spontaneous prattle, no words or actions pouring out the unrestrained thoughts and feelings; nothing truly enjoyed, because there is an undefined fear of doing or saying something which may provoke rebuke; or if there be enjoyments, they are received in silence, and in that solitude of heart which leads to selfishness. Candor is a quality to be encouraged in children; indeed, it is natural to them; their helpless, dependent nature leads them to seek and bestow confidence; they have no reasons for concealment but such as fear induces. If it be needful, as assuredly it is, to learn the character of a child's disposition and feelings, to trace out the beginnings of error, to observe how impressions are made, and what are their effects, how can this be done when fear influences the child to conceal, to misrepresent, to affect and to deceive? To a young mother whose career of maternal duties is but just commenced, it may seem unnecessary to dwell upon the importance of an affection which she believes is already too full for increase; but she must look forward to the time when she will be surrounded with little ones, of different dispositions, the novelty of her situation worn off, and youthful spirits less joyous and elastic. When pecuniary means are not so equal to the support and comfort of many as of one, when cares and anxieties of all kinds increase, then comes the time for the exercise of perfect love, when it is most powerfully taxed, and when it is most likely to give way. The active mind is more liable to irritability than the indolent; therefore the best informed, the most ardent, anxious, and well-meaning parents, are the most likely to

forget their previous convictions, and in a moment of impatience to inspire their children with fear, and thus to shake the confidence which the child ought to repose in its parent. So true is it, that before we can govern children, we must be able to govern ourselves.

Obedience from child to parent is justly insisted upon ; but it is not sufficiently considered that the means of establishing it depends more upon the conduct of the parent than upon that of the child. Obedience, to be of any use in forming goodness, must be based upon love, respect and confidence. It is by no means unusual for children to be told that whatever their parents do or say, is right ; that they must be loved and looked up to as patterns, and obeyed without hesitation. Now, instead of *telling* them this, it would be wiser to make them *feel* it ; and by the exercise of kindness and gentleness to all, industrious attention to duties, strict and universal observance of truth, to earn the love and respect we would command, and, by example and practice, accustom the young to witness and experience the effects of the virtues we recommend. The feelings of children may be subjected to habit as readily as their appetites, and they can only be habituated to goodness by continually feeling its effects. The serenity and happiness produced by kind treatment nourishes love to others ; example shows how that love may be made active. The child who sees that its mother's occupations have a reference to the advantage or welfare of others, that they contribute to the comfort of all, and that she finds pleasure in these occupations, has learned a practical lesson in benevolence ; and if it seek to act upon what it has learned, its efforts should be gratefully received. No matter whether they are serviceable or not, the *intention* is the thing to be valued. It exercises the benevolence to employ a child in little services, such as fetching an article that is wanted, putting things in their places, picking up litter, etc. When cheerfully executed, they should be acknowledged, and, if

unwillingly performed, thanks are still due; but the child might be made to perceive that a willing service is most prized.

A mother gains nothing, and loses every thing, by making a child *fear* her. Fear may compel obedience, but it will establish no real goodness, no spontaneous wish to do right; on the contrary, commands will be evaded whenever it may be done with impunity. There will be concealment of thoughts, feelings and actions; and cunning and deceit will take the place of truth and honesty, and the mother will never have any influence, nothing but temporary power. The only fear a child should feel, is the fear to do wrong; not, however, because it dreads punishment, for this is a low, debasing motive, but because it would not pain those it loves. The fear of a mother's sorrowful countenance will be a more efficient check, a more healthy influence to a *young* child, than the fear of her angry voice. Confidence in a mother is very necessary to obedience, and can only be obtained by such a practice of truth and steadfastness on her part, that there is a perfect reliance upon her. A child has little or no experience of the consequences of his actions, nor will he with the best guidance always consent to take warnings and prohibitions upon trust; but when he is never deceived, when promises are never broken, threats never made in vain, there grows up a faith in the mother that leads a child to respect and to obey. To gain this faith, this perfect reliance, the mother must be consistent, equal in temper, the same to-day as yesterday, otherwise the child becomes confused, does not understand why the permission of yesterday is changed into a denial to-day, or why the smile of affection is now altered to the tone of irritable complaint.

Falsehoods of a very fearful kind are sometimes uttered to deter children from errors. Threats of old men and black men, and other like terrors, false and true, are resorted to, to frighten them into obedience. It is ascer-

tained that death, fits, idiocy, or insanity, have been the consequences of such inhumanity. But setting aside the probable chance of such calamities, there are other *certain* results. If the child discovers the falsehoods practised upon him, he becomes boldly indifferent to the threats, is more disobedient and willful than ever; disbelieves all that is said to him, and, finding no respect for truth in others, has no regard for it himself. What becomes of the timid child? He lives in a state of fear of—he knows not what. The sight of a strange face or a new object fills him with terror, for it may be one of the horrors with which he has been threatened; his faculties are all deceived, and diverted from their proper objects; he lives a life of fear and doubt, unable to distinguish between what is true or false, real or unreal, good or bad. He loves nothing; it is well if he does not hate. But he is not the more obedient.

The exercise of any sort of cruelty toward children, renders them insensible to the sufferings of others. And this is a reason why they should not be subjected to personal chastisement. Imitation being one of the strongest faculties, the child who is beaten also uses blows to effect his purposes. There are many parents who, upon calm reflection, would shrink from inflicting a personal correction, or encouraging violence, yet are continually fostering a passion for fighting. For instance, a child falls down and hurts itself against the floor or the furniture, and is immediately urged to beat them. This is the first lesson, practically showing that revenge is to be indulged. Above all things, let the mother beware how irritability betray her into a slight pat, a twitch, or a gentle shake; if indulged, they inevitably lead to something more, and personal correction becomes a regular habit. When once recourse is had to blows, nothing else is left; the child gets hardened to the sense of pain, indifferent to disgrace, and before committing a fault, does not consider whether he is about to do right or wrong, but weighs the chance

of escape, and the proposed gratification against the pain of a beating. There is a quality in most minds which resents injustice and feels disgrace. It is a valuable sentiment, and gives that self-respect which assists in elevating the character, and preserving the individual from every thing base and degrading. When this sentiment is powerful, a resentful feeling is aroused by violent correction, not the humility which is necessary to a sense of error and consequent amendment. Where it is not active, chastisement extinguishes all feeling of self-respect, of honest and worthy ambition, of generous desires, and establishes in their stead a taste for all that is base, low and sensual. Every correction that is inflicted in anger, bears the appearance of revenge, and seems intended to gratify the offended feelings of the parent, not to amend the child. If a parent is angry, she must wait before she speaks. This will give her time for reflection, and then she will seldom err. It is a habit that should be perseveringly practised by every irritable nature. Many persons act wrong upon impulse, who are right upon reflection; with such, reflection should always precede action.

No man submits to a blow; he considers it the heaviest indignity that he can receive; while to strike a woman is deemed so great an act of cowardice, that few persons, however debased, are found guilty of the practice. Her weakness is her protection. How comes it, then, that children are subjected to a degradation which a man revolts from enduring or inflicting? The nature of a blow is not altered by the person on whom it is inflicted, except that the physical weakness of the one party reflects upon the individual who deals the blow. The influence is, that the *parent* who inflicts personal chastisement is more degraded than the child who receives it; and though the child can not *reason thus*, he *feels thus*, together with a sense of injury that must break up all filial respect and confidence. These remarks apply to a later period than childhood; but the beginning is then, and the parent

must beware of first steps. She must guard her own habits as well as those of her children.

Some children early evince a love of cruelty. They torture insects ; they destroy wantonly, and pull in pieces, break, crush, and tear, every thing that comes in their way. To cultivate the opposite feeling, as has been already mentioned, is the mother's part; she must prevent every circumstance that can encourage the propensity, manifesting dislike at its exhibition. No better check can be found than occupation, giving a child something to do that will employ its energies harmlessly. She ought to show it how animals should be treated, first making use of a toy, teaching the child to feed and caress and protect the representation of the dog or horse, and taking it away on the first exhibition of unkindness. When the child can comprehend her, she should relate tales of mercy, never of *cruelty*, even when the imaginary delinquent is punished; for where there is a propensity to cruelty, the mind receives pleasure in listening to its details; indeed, it is seldom prudent to tell children any stories which illustrate misconduct; all their early ideas should be of goodness; their curiosity is often so much excited, that they are impelled to do the things they hear of, in order to ascertain the facts. Neither is it wise to excite the feelings by tales of deep sorrow or suffering. Indifference or unhealthy sensibility too often succeeds such excitements, and compassion and tenderness are exhausted upon fiction, instead of being exercised upon realities. No child should be allowed to witness the death of trapped mice, rats, the drowning of puppies and kittens, etc.; they can not be made sensible of the reasons for their destruction; they do not know the nature of suffering and death, but only derive amusement from the spectacle, and learn to look upon pain as matter for sport and pastime.

Love, then, should be the impelling reason, the directing power of education. Where love influences the parent,

the children of a family will be actuated by the same spirit—a spirit subversive of selfishness. Dissimilar as all characters are, different as all intellects are, and different as all situations are, the great duty of life is the same—the promotion of the welfare and happiness of our fellow-men. There are few errors, perhaps none, which do not affect the happiness of others as well as of ourselves; each individual who improves himself, improves society; and every mother who rears her child aright, aids the universal progress toward excellence.

EARLIEST INTELLECTUAL EDUCATION.

The intellectual education of children, until two years of age, consists in preparing the senses for the reception of correct ideas of things. The rudiments of all learning are acquired by means of the sight, hearing, smell, touch and taste; as these increase in strength and activity, new ideas are gained, and new impressions made. The operations of the senses are so closely connected, that correct notions can not be at first acquired on any subject by the action of one sense only. Touch confirms or corrects ideas of form, texture and substance; and we find that the blind employ this sense to acquire the knowledge that can not be obtained by vision, while signs and gestures are addressed to the deaf, and employed by the dumb, to express what speech usually conveys. Infants must be permitted the free use of the senses, and be furnished with the best means for promoting their voluntary and healthful employment. Direction is all that is needed from the parent, while imitation is the faculty she will chiefly appeal to, always keeping in mind the delicacy and excitability of the organs. She will find that at a very early age there are decided indications of a preference for certain objects; and though she may contribute to happiness by indulging a predilection, she ought gradually to endeavor to direct the attention to objects which

will generally employ the faculties. For example, if a child show most delight at seeing colors, she ought not to foster this use of the eye only, but direct it to discriminate form, dimension, arrangement and numbers. It is natural to encourage that which is most easy and pleasurable, but the object of the first steps in education is to prepare *all* the powers, not to perfect *one*.

Next to bodily health, employment is the source of an infant's happiness, and one of the means of developing its moral nature. The love of employment is an inherent desire or instinct; and it remains to be considered how this strong desire for occupation may best be satisfied and directed. First, objects must be found for its exercise which are harmless, of no value, or not easily injured, and which shall address the eye and the touch. The inclination to carry every thing to the mouth renders it difficult to provide proper means of amusement, but which may be done by a little ingenuity. A colored silk or cotton handkerchief, for instance, is to be met with in every house; having variety of color, and being capable of variety of form, the eye is delighted; its softness gratifies the sense of touch, while its yielding nature permits it to be shaken, twisted, whisked about, offering endless excitement for the exercise of the hands and arms. As the power of observation grows, the mother may fold the handkerchief, which the child will watch, and next imitate. A piece of broad ribbon will give a variety of entertainment, and the crumpling and folding of paper changes its character again. A bag should be prepared in which to store every fragment that can delight without hurting an infant. There are articles in every house, which, if gathered up and applied, would spare money, time, and temper—for example, feathers, shells, buttons of every variety, cotton-winders, corks, cards, colored beads, bits of silk, ribbon, and printed cotton, with many other nameless matters. One precaution is necessary—that every article that can be swallowed should be secured.

upon a string, so that they may be moved freely upon it. These things will at first only be turned over, tumbled about, shaken, rolled hither and thither, put in and out of the bag: as soon as this has become wearisome, and there is no more spontaneous application of them on the part of the child, the mother may arrange them in certain forms or according to color; in short, make any application of them likely to attract. Then she may place them by number—one here, two there, next three, etc., or she may raise cotton-winders, corks, or cubes of wood, one upon the other, or distribute them in squares, columns, etc. All she has to observe is, that she conveys only one idea at a time, that she never insists upon the continuance of a pastime one instant after it has become irksome, nor worries a child from object to object, but leaves the child free to imitate, alter, or otherwise apply the idea, since something may have been suggested which it will benefit the child to work out, and so raise him above the mere imitator. She has only to give the direction: suggestion is her province equally with example.

A book with cloth leaves whereon to paste prints, is a source of unfailing pleasure; it can not be torn like paper, and gives the means of associating things with their names. Representations of domestic animals, birds, insects, fruits, vegetables, utensils and furniture, are the most desirable, because they are seen in their realities; while the power of cutting out with the scissors is another admirable means of addressing their faculties, quite worth a mother's cultivation. A very rough resemblance satisfies a child; and the use of the pencil and scissors, or a reference to prints, assists in illustrating a story or a fact, which without such aids is often uninteresting and unintelligible. Objects that fit one into another, exercise the hand and the eye, such as a box with a sliding lid, a piece of wood with holes, having corks corresponding in size, a basket to be filled with cubes of wood and carried steadily; these, and such as these, also act as trials of

patience. A box with compartments, in which shells, counters, beans, beads, cubes, triangles, etc., could be arranged according to size, form and color, is a safe and desirable toy when the child has ceased to put every thing to the mouth. It is almost unnecessary to recommend a box of bricks, nine-pins, a ball, a doll, a cradle, etc. As soon as a toy has ceased to amuse it should be put away, and, if it no longer excites attention, kept out of sight until time enough has elapsed to make its novelty again attractive. A slate and pencil are usually welcome; children are delighted to imitate the occupations of older persons, and are happy in believing themselves to be reading or writing. When children are beginning to articulate sounds, it would assist them if familiar objects were pointed out, and, at the same time, the name of each distinctly pronounced. The ear would thus be instructed and the imitation aroused. When listening earnestly, a child's lips and tongue may often be observed following involuntarily the movements of those of the speaker, and so acquiring the first principles of articulation. The deaf and dumb are taught to speak by directing their attention to the position of the lips, tongue, teeth, and larynx of the speaker during utterance. The same means may be employed to overcome the difficulty in pronouncing certain letters experienced by some children. Thus, the *c* and *k* are often sounded like *t*, as *took* for *cook*, *tiss* for *kiss*. If at four years of age articulation is not perfect, a child ought to be systematically taught to pronounce correctly.

A child will not always put a toy to the purpose for which it was intended; but provided he does not destroy it, this exercise of invention is advantageous, and it is for this reason that fragments are more agreeable than the most perfect toy which has but one action. Children are usually fond of destroying and of constructing; if they have not materials for the latter, they will make them out of any thing that first offers itself. Many are called

mischievous who are only impelled by their nature to construct, and who, having no employment found for their natural activity, create it for themselves. The little articles above enumerated may be made at little cost; and in this department of infant training the father may give important aid. A child having no experience of its own strength, does not know what can and can not be broken, nor foresee the effect of its own actions; while the constant injunction to take care, the directions not to do this, and to beware of that, so perplex, irritate, or alarm, that there is no enjoyment in the plaything, and the pastime ends in mechanically looking at or moving it without benefit or pleasure. If allowed to destroy without caution or care, the first step is taken toward reckless wastefulness. The only care to be expected from a young child is abstaining from direct violence, and the endeavor to gather his playthings together, and put them by in the box, drawer, or cupboard allotted to them; and even in this he must be assisted, for when amusement is over, the interest in them is over also, and the child can not be expected to understand the utility of order till he has had experience of its advantages.

We do not mean that children should be *taught* to play, or that their faculties should be systematically put to work; the object is to furnish the means of employing that activity with which they are so largely gifted, so that it may not be used injuriously to themselves or others, but be turned to the development of many of the mental qualities. Neglected children exhibit melancholy examples of the misapplication of their early powers. The well-worn adage, "Idleness is the root of all evil," applies to infants as well as adults; with this difference, that their idleness is not a matter of choice, and that, intellectually as well as physically, they are dependent beings.

The playthings of children may be made serviceable in giving them notions of property. Furniture, utensils, books, and the ornaments of a house, offer constant temp-

tations to the curiosity and activity of children, and are often materially injured by them; they are continually infringing positive commands when they meddle with them; but if provided with proper objects of amusement and observation, if they be repeatedly shown that these objects are *their own*, but not the furniture, the temptation to err will be less. Besides which, there ought to be as scrupulous a regard to the property of the child, as is required from him with regard to the possessions of others, while the understanding may be strengthened by reserving some few articles which can be lent when *asked* for. These should be kept apart, and over his own toys there should be perfect power, while they are not applied to injure other people. When there is a determination to destroy, no new toys should be bestowed, but it is scarcely fair to take away those already in possession; an article once given becomes property, which the owner can not be justly made to resign. No moral law should be infringed, because a child is in the power of its parents: if so, the rule is admitted that authority—superior strength—in short, whatever constitutes *power*, may do wrong at its pleasure. Children should feel that their parents are their protectors, who will not only rescue them from the danger of the moment, but also foresee and prevent evil. Having felt this in all that regards comfort, health, the allaying of hunger and thirst, alleviation of pain, etc., they will soon make an instinctive moral application of the protective power and inclination.

Telling stories is an inexhaustible fund of amusement; and, fortunately, no one, however deficient in invention, need be at a loss, for the child is best satisfied with the simplest narrative, simply because he can understand and sympathise. He is delighted to hear that a little mouse came out of a hole, and carried some crumbs from the floor to his little hungry children at home. This may be related in more detail twenty times in the same *words*; and “tell it again” will follow every repetition. Tales are

better told than read. Indeed, there are very few publications simple enough for *very* little children. Every mother should give attention to the accomplishment of telling a story; it is a powerful instrument for the production of good, when wielded with discretion. She should not make too much use of the wonderful, none of the terrible, the pathetic occasionally, the benevolent more frequently; but she must not always address the sentiments and affections. Simple facts illustrative of the habits of animals, birds, insects, trifling details of common events, such as of the doings of the man while making a chair or painting a house, or of a little girl who gathered wild strawberries, and running home very fast, was quite out of breath—such are also very suitable materials for story-telling, to be embellished by descriptions, and lengthened out by words rather than by too many or dissimilar ideas. Verse and song should bring their charms also. Most children are caught by versification, and by the melody of rhyme, long before they understand words; the effect of soft vocal music seems instinctively acknowledged in that maternal lullaby which forms a part of all national music. It is scarcely necessary to remark upon the various sentiments and faculties which may be thus healthily addressed, nor that the child may be kept from bodily fatigue during the recital of a tale, while the mother may ply her needle, or pursue other domestic occupations.

In telling stories, it is well to divide them into those that have happened, those that might happen, and those that never could happen. The last should be reserved till the understanding is advanced enough to make some thing like a distinction between the possible and the impossible. A love of truth is imperceptibly but surely advanced by impressing its importance upon the intellect as well as upon the sentiments.

Children indulge their imaginations by pretending to be other people, and performing a series of events which they have seen or heard of, or only supposed. They

readily convert chairs into horses, houses, etc., and soon become so identified with the creations of their fancy, as to be greatly disturbed by any interruption which recalls them to reality. When much given to this self-deception, they will sometimes defend themselves from the charge of having said or done wrong, by asserting that they were then somebody else. A mother must never admit this defence, however ingenious, nor allow the slightest approbation of the ingenuity to escape her. There can be no evil from this exercise of the imagination, provided there is no mischievous intention; on the contrary, the real character of the child will frequently be more perceptible. The prevailing sentiments will thus often manifest themselves; the benevolent will enact deeds of kindness and generosity; the violent will perform deeds of arms, or of punishment, or of contention; the timid will discover their fears, and the hopeful their desires. Dressing in a fancied character is a harmless adjunct to these sports of the fancy, and in this case taste and ingenuity may be cultivated; but where the object of the child is to obtain admiration, and not to excite mirth, or to increase the reality of his personification, he should find his failure in the indifference of the bystanders.

Out-door sports in fields and gardens are dependent upon the weather. Gathering wild-flowers, forming them into nosegays and garlands, wearing daisy chains, and stringing berries, the spade, the barrow or cart, the ball, and the hoop, are universally known. Here, as in the house, the mother must occasionally join the sport, suggest, and sympathize. Playing in and with the dirt for no object, should be discouraged; it leads to nothing useful, and gives a disregard to cleanliness. Digging and raking may soil the clothes, but, as the first step to the cultivation of the earth, the end justifies the occupation. In a garden, as in a house, there are means of imparting notions of property; and there should be an endeavor to give a clear understanding of the flowers which may, and

may not be gathered, and the spots which may or may not be played in.

A fear of insects and reptiles is very prevalent among adults, and especially females, and may in most cases be traced to the impressions made in early childhood ; it leads to much cruelty and needless destruction of life, while it deprives those who are under its influence of a large share of delightful and profitable information. The innocent pleasures to be derived from flowers, trees, and all else that adorns the country, are converted into fear and pain, by the dread of the insects and reptiles that dwell among them, and which, in truth, contribute to their interest.

A child should be taught to avoid wasps and hornets, not to handle bees, and not to sit down on ants' nests. But, at the same time, let the ingenuity and industry of these insects be pointed out, so as to raise emotions of pleasure in the infant mind. A little attention in this respect would greatly improve the intelligence and taste of the child, and, at the least, prevent it from feeling disgust or aversion in looking upon some of nature's most interesting works. To bad training in infancy, we have to ascribe the loathing which is usually felt respecting toads, spiders, and many other creatures, whose uses and economy ought to be the subject of delightful contemplation. We say to all mothers—lose no opportunity of cultivating in your children a perception of the useful and the beautiful, whether in nature or art, for on this may be founded the correct habits and tastes of after years.

Telling children they must attend and observe, is of no use whatever ; they do not know why they should learn ; they have no wish to learn, or rather they have no wish to study ; but when they have continually derived pleasure from observation, they will observe from inclination. On first being put into a swing, the child has no notion what it will feel ; but when it has ascertained the motion to be pleasurable, the exercise of the swing is associated with pleasure. The use of the faculties undergoes the same

process; as soon as the child is conscious of the pleasure their exercise affords, he voluntarily applies them.

By endeavoring in this manner to amuse or delight the tender perceptions of infants, mothers will have performed an important part of their duty, and further than this, as respects instruction, they must not at present go. Under two years of age—or even under three or four, according to circumstances—children should not be incited to acquire any species of knowledge which requires a considerable exertion of the intellect. Attempts to teach very young children to read, to repeat answers to catechisms, etc., are highly blameable. As repeatedly stated, all that is brought under the notice of the infant should excite joyous conceptions in his tender mind, and gently encourage the growth of those habits which are an ornament in youth as well as later years. Children being the creatures of imitation, should, by all means, be reared only by female attendants who possess an equable temper, and will study to cultivate correct sentiments and habits in their young charge. For the same reason, children should not be allowed to associate with servants who talk coarsely or indelicately. In those parts of the country where a vicious provincial dialect prevails, female attendants should, if possible, be procured from a district where the language is more correct; and if mothers are unable to incur the expense of doing so, they should endeavor, by personal attendance and care, to compensate the deficiency. Let mothers be assured that they can not commit a greater error in the rearing of their children, than assigning them to the charge of incompetent nurses and attendants; for thus habits are ingrafted which no discipline or education in after years can altogether eradicate.

It may be asked, whether there should be any difference between the mode of rearing male and female infants. We answer, none at first. The mental faculties of both sexes are radically alike. It may, however, be useful to mention, that boys are usually more difficult to rear than

girls. It is allowed, for instance, that they are more liable to convulsion fits; but this is a point which we leave to the discretion and advice of the physician. As infants approach two or three years of age, they will have a tendency to amuse themselves in a manner befitting their sex. A taste for nursing seems a strongly planted passion in females, and will readily demonstrate itself in the fondling and dressing of dolls. This is a sentiment which should be encouraged by the mother or nurse, not only because it is natural and innocent, but because it leads to careful and tasteful habits. Many women will acknowledge that their taste for neatness in attire was first cultivated by the attentions which they lavished on their dolls. But this matter ought strictly to be treated of in an advanced work, and it is only necessary here to make it the object of a passing hint. Boys will, in the same manner, exhibit peculiar tastes and tendencies, which will admit of similar regulation.

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